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THE DAWN OF MODERN THOUGHT

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THE DAWN OF MODERN THOUGHT

DESCARTES SPINOZA
LEIBNIZ

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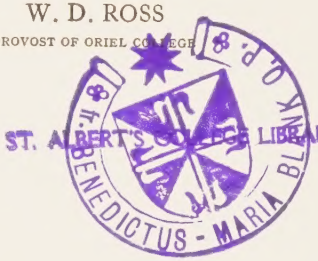

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INTRODUCTORY NOTE

THE hundred and twenty years that intervened between the birth of Descartes and the death of Leibniz may fairly be said, in the realms both of philosophy and mathematics, to have witnessed the dawn of modern thought. It is true that the recent researches of Professor Étienne Gilson and others have shown that Descartes' philosophy was not the entirely new departure which it has sometimes been supposed to be, but owed much to the Schoolmen; and that Professor Roth has been able to prove a large debt of Spinoza to Maimonides. But no research can impugn the essential originality of these thinkers. Every reader feels the freshness of Descartes' outlook, of his spirit which questions everything not for the sake of questioning or of scoring dialectical victories over dogmatism, but in order to see what truths there are which survive all questioning and can be made the starting-points of philosophy. Every reader can see, too, that in him the Platonic type of thought which moves on the borderline of philosophy and mathematics makes discoveries of surpassing originality and importance. And though the materials of Spinoza's thought may perhaps all be found in his predecessors, the white heat of his intense spirit has fused them into a whole which is genuinely new, and which still remains and perhaps will always remain the most classic expression of monism. Leibniz again carried on to new and dazzling triumphs the half-philosophical, half-mathematical thought which had been characteristic of Descartes, and becomes in his turn one of the most classic exponents of pluralism. The three thinkers, together with distinguished Cartesians like Arnauld and Malebranche, make the seventeenth century one of the great periods of philosophy,

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and one apart from which the later developments of philosophy cannot be understood.

Dr. Mellone's book offers to general readers interested in philosophy, as well as to University students, a sympathetic and at the same time critical account of the leading activities and ideas of these great thinkers, such as may prepare the way for more elaborate commentaries and criticisms; and his bibliography tells them where they may look for further guidance. A book like this, which limits itself to giving a moderately full account of a particular period, should appeal to many readers who find the effect of general histories of philosophy confusing and benumbing.

W. D. ROSS.

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I

THE NEW OUTLOOK

In this book we shall describe the essential achievements of three great thinkers, whose work belongs to 'the century of genius'. The seventeenth century is not unjustly so named. It is the one century which throughout the whole range of human activities provided intellectual genius adequate to the greatness of its opportunities. The harvest of the gradual transition, from the outlook of the Middle Ages to that of the modern world, was ripe for the ingathering; and men like Francis Bacon, Harvey, Kepler, Galileo, Descartes, Pascal, Newton, Locke, Spinoza, Leibniz, arose to carry on the work.

During the fourteenth, fifteenth, and sixteenth centuries, the European nations were learning to throw off the influences which hitherto had guided their religious, their scientific, their political life. The religious authority of the Church, and the intellectual authority of Aristotle as expounded by the great theologians of the Church, appeared no longer as welcome guides but rather as encroaching tyrannies.

This spirit, strengthened by the re-discovery of the literature and art of classical antiquity, and by the impulse to national self-assertion, was crossed by and partly mingled with the religious movement represented by Luther. But the influence of Luther's movement went much farther than the aims which Luther himself had at heart. He advocated the abolition of institutions for the cultivation of formal asceticism because to him

they stood for indolence rather than for true self-sacrifice. He approved the restriction of ecclesiastical exercises because to him they were mere external compromises with Heaven. The true reconciliation was through faith, an inner condition of the emotions and the will. Such were Luther's conscious aims; but the thoughts of men were instinctively turning earthwards, and the spirit of the age took the ultimate issues out of Luther's hands. The reaction against institutions for the cultivation of formal asceticism became the expression of a desire for secular civilization and comfortable living; and the restriction of ecclesiastical exercises was valued because it left time for mundane affairs.

It has been said that the place given to *natural science* is the surest indication of the character of a civilization. In the modern world, science is valued as a means to practical achievement. Francis Bacon has proved a true prophet. Cowley compared him to Moses,

> Who did upon the very border stand
> Of that fair promised land.

Bacon dated the beginning of the modern era from the invention of the magnetic needle, of gunpowder, and of printing. His whole philosophy of science is based on the ideal of natural knowledge as a source of power. Its possibilities, as he conceived them, are set forth in imaginative form in one of his latest works, the *New Atlantis*, a picture of the ideal civilization of the future. Its central and supreme institution is a vast organization of workers engaged in investigation and research in every department of science. Their common aim is

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'the knowledge of causes', for the sake of increasing the *regnum hominis*, the 'kingdom of man', and for 'the effecting of all things possible'. Under the auspices of this organization, innumerable things of interest and utility are done, among which the following achievements are specially noteworthy: the prolongation of human life; the production, by artificial selection and breeding, and also by vivisectional surgery, of new species of animal and vegetable life; the wholesale vivisection of animals, in order to throw light on what may be done with the bodies of men; the perfecting of all kinds of optical instruments; the manufacture of cannon of enormous power, of flying machines, and of submarine boats.

With less power of imaginative intellectual prophecy, but with far greater grasp of principles, Bacon's younger contemporary, Descartes, formulated a programme of reforms in philosophy, which included physical science. In his *Discours de la Méthode*, published in 1637, he says:

'As soon as I had acquired some general notions respecting physics, and, beginning to make trial of them in various particular difficulties, had observed how far they can carry us, and how much they differ from the principles which have been employed up to the present time, I believed that I could not keep them concealed without sinning grievously against the law by which we are bound to promote, as far as in us lies, the general good of mankind. For by them I perceived it possible to arrive at a knowledge highly useful in life, and in place of the *speculative* philosophy usually taught in the school, to discover a *practical*, by means of which, knowing the force and action of fire, water, air, the stars, the heavens, and all the other bodies that surround us . . . we might apply them to all the uses to which they are adapted, and thus render ourselves

the lords and possessors of nature. And this is a result to be desired, not only in order to the possession of an infinity of arts by which we might be able to enjoy without any trouble the fruits of the earth and all its comforts, but also and especially for the preservation of health, which is without doubt of all the blessings of this life the first and fundamental one; for the mind is so intimately dependent upon the condition and relations of the organs of the body, that if any means can ever be found to make men wiser and more ingenious than hitherto, I believe it is in medicine that they must be sought for.'

Such a passage illustrates the strength of the author's interest in the practical bearings of scientific inquiry; but his own actual achievements, which went far towards moulding the character of the thought of his age, do not belong to the sciences of Life. There were, indeed, able physiologists, besides Harvey, in this century, and important advances in biology were made, chiefly at the University of Padua; but the dominant interests of the age were those arising out of the progress of mathematics, and the application of mathematics to the problems of what is now called physics. In the seventeenth century, mathematics recovered the position which Plato had striven to give it two thousand years before, and from which Aristotle had deposed it. It was, however, a mathematics which had gained immensely in generality and power; and in the age of Galileo, Newton, Descartes, Spinoza, Leibniz, mathematics was an influence of the first magnitude in the formation of philosophic ideas.

We shall see, in the sequel, how this influence worked, but an immediate result of it must be mentioned here. The importance attached to mathematical

method led to the assumption that *clearness, distinctness, and absence of contradiction* in and among our ideas constitute the test of truth. What is clear and distinct, not to the eye of mere imagination but to the eye of Reason, is true. And in like manner these philosophers never doubted that we can really learn to understand and know the world around us, and that, the right method once grasped, knowledge may be extended farther and farther until it attains to the very nature of things.

The men of the Renaissance threw aside the literary and artistic productions of the Middle Ages as Gothic barbarisms; and the scientists and philosophers of the new age threw aside the works of the medieval schoolmen as a boy throws aside his school-books and exercise books when his course is done. How far these philosophers had really outgrown the assumptions and methods of their predecessors will appear as we proceed.

II

DESCARTES

i. *His Life and Personality.*

René Descartes was born on March 31st, 1596, at La Haye, a small town in Touraine, on the River Creuse, about midway between Tours and Poitiers; but his childhood was chiefly spent in Brittany, where his father was *Conseiller au Parlement* at Rennes. His compatriots reckoned him a Breton, although his family tree was firmly rooted in Poitou, and he considered himself a Poitevin. Never was there a man for whom such details were less important. No theories of 'heredity' or 'environment' can do anything to explain that independent, abstract, yet eager mind.

Descartes, however, was born of a mother apparently consumptive who died young during his infancy, leaving him a legacy of enfeebled health, so that the doctors half despaired of rearing him. His father, anxious to surround the child with every care, entrusted his education to the Jesuits, who brought him up in their newly established College at La Flèche. Of the education there given, of the equality maintained among the pupils, and of their free intercourse, Descartes at a later period spoke in terms of high praise.

He was a brilliant scholar, learning with ease and avidity and carrying all before him. Having left school, he appears to have intended to follow his father's profession of the law; but nothing came of it. After four years in Paris—partly occupied with social life and partly with solitary work at mathematics—he set out, at the age of

twenty-one, for the Netherlands, and took service under Prince Maurice of Orange, son of William the Silent, and one of the greatest generals of the age. Soon afterwards, desiring to see more of the world, he joined the army of the Duke of Bavaria, and later of the Emperor, and followed more than one campaign. But he found no satisfaction in military service, and fell into a state of despondency in which nothing seemed worth while; until one day, reading on a wall a placard advertising a mathematical problem—according to the custom of those days—and challenging any one to solve it, Descartes solved it almost at sight. The pleasure of the discovery dispelled his dull depression: and soon afterwards a night of strange dreams, which he believed to be heaven-sent, confirmed him in his resolve to seek truth within and not without. He left the service of the Emperor in 1621, but did not immediately abandon his travels, although the whole perspective of his life was changed. He visited Rome, and lived for some time in Paris; then he sold his estates in Poitou, and in his thirty-third year settled at a quiet country house in Holland, where he might live undisturbed; for he was persuaded that his principal duty was to think. His work betrays no sign of interest in history, literature, or art; he looked only to the actual aspects of human life and the phenomena of nature, and his wisdom grew out of his own reflections and experiments, calmly yet ceaselessly pursued.

Between the ages of thirty-three and fifty-three Descartes lived almost entirely in Holland, moving more than once from one to another of the Dutch manors that he loved. He never separated himself from

the Catholic Church, and was anxious to avoid giving offence in ecclesiastical circles. In his own way, he was religious: he was careful at every change of residence to choose one near some village which had a Catholic Chapel for the Mass, and the *curé* of the parish was usually one of his intimates. A charming description of his residence at Endegeest, near Leyden, is on record. He lived there in a little manor agreeably situated, with several servants, and with a fine garden at his disposal, and an orchard beyond which the eye ranged at will over a wide plain dotted with distant spires. It was, however, no solitary life. Several canals led from Endegeest, mere village as it was, to The Hague, Utrecht, Delft, Rotterdam, and Haarlem; and friends could easily come and go. These were prosperous and brilliant days for the Dutch State. Liberty reconquered had given such an impetus to art, commerce, learning, and society, that few countries were pleasanter to live in.

His principal work during the early years of his residence in Holland was a physical theory of the universe set forth in a treatise which he called *The World*, in which he argued that the earth moved round the sun. After hearing of the condemnation of Galileo at Rome, he decided not to publish it, but to sow the seed more gradually. In 1637 he published, at Leyden, his first great work under the title *Discours de la méthode pour bien conduire sa raison et chercher la vérité dans les sciences*, which was widely circulated by the author, and attracted attention both in Holland and France. In this book Descartes gave a sketch of his new method, with some suggestions as to its application, and a mental autobiography to explain its origin.

His second great work was published in Paris in August 1641 under the title *Meditationes de Prima Philosophia*. In it he expounded more in detail the foundations of his system, laying special emphasis on the priority of mind to body, and on the absolute dependence of both mind and body on the existence of God. In 1644 the third great work of Descartes, the *Principia Philosophiae*, appeared at Amsterdam. Passing briefly over the conclusions arrived at in the *Meditations* it deals in its second, third, and fourth parts with Laws of Motion and the general principles of what we should now call Physics. The work exhibits some curious marks of caution; the Copernican theory, for example, is rejected in name but retained in substance.

Shortly after the death of Descartes his friends published another book, written probably after the *Principia*, and entitled *Les passions de l'âme*. This is an application of the philosophical principles already expounded, to the description and explanation of the primary Emotions; and incidentally he develops an ethical doctrine which appears to have been suggested by the *De Vita Beata* of Seneca.

During these years of concentrated activity, a number of friends—most of them Catholic priests—were the intermediaries who took charge of his correspondence and sent it on to his proper address, which he wished to be kept secret; and his intimate friend Father Mersenne —an old fellow-student from La Flèche—sent him loads of questions and objections.

The first twelve years of his residence in Holland were perhaps the happiest of his life. But eventually he had to learn that slander and religious intolerance can

flourish in every soil. In Calvinistic Holland he came to be regarded sometimes as an Atheist and sometimes as a Jesuit in disguise. Some mild persecution and much harassing controversy followed. Descartes became restless and dissatisfied. The charm had left Holland. One of his friends, then French Ambassador in Stockholm, informed him of the young Queen Christina and her zeal for intellectual study, and also spoke to her of his admiration for Descartes. The result was a royal invitation to the master to spend a winter at the Court. Much attracted by the offer, Descartes set out in September 1649. At first he seems to have enjoyed his new environment; but he had not counted on the rigours of the Scandinavian winter. He caught cold and died of pneumonia in March 1650, a few days before his fifty-fifth birthday.

It has been not unjustly said that Descartes stands with Plato, and possibly Berkeley and Malebranche, at the head of all philosophers in respect of style; and in his case the excellence is the more remarkable because he had no models, and in a great degree was obliged to create the language which he used. The *Discours de la Méthode* is not only a landmark in the history of philosophy but also a landmark in the history of French literary style. Almost every page of it might have been written by a master of the language at the present day. The very spirit of the Cartesian philosophy is intimately connected with this clearness, distinctness, and severity of style.

ii. *The Cartesian Method*

The result of the mathematical studies to which Descartes had been led by temperament and genius—

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and in particular the result of his careful reflections on the method of geometrical proof—was that he proposed to introduce the same method into scientific inquiry in general. It is essentially the method which aims at knowing exactly what its initial assumptions are and what they mean, and at deducing their consequences exactly and in the right order.

The rules given in the second section of the *Discours de la Méthode* are of oracular brevity; and even in their expanded form in the later *Regulae ad Directionem Ingenii* they must be read in the light of the author's original and independent mathematical studies, and in particular of the *Géométrie*, which was published in the same year (1637) as the *Discours*, though it was the result of much earlier work.

Long before the publication of the *Discours*, Descartes had made known to his friends the principles of his new Analytic Geometry, in which he reduced *form* to *magnitude*. As in geography we refer places on the earth's surface to the equator and a definite meridian, so he referred every point in a curve to one or more lines whose position is given. For example, in a circle, the perpendicular to the diameter from any point in the circumference, and the distance of that perpendicular from the centre, are two lengths which vary for every different point in the circumference, but have a definite relation to each other which is the same for all such points. This constant relation can be expressed in the form of an algebraical equation, and then serves as a definition of the curve, from which its properties can be deduced. Analytic Geometry thus provides a great gain in simplicity and generality, and forms an example,

though only one example, of the general nature of mathematical science.

The fundamental idea of mathematics Descartes finds to be that of *order*. In other words, the objects of this kind of knowledge fall into series, of which the members are known by means of one another. In every such series or group there is a dominant or constitutive element, simple and irreducible, the standard on which the rest of the series depends, and hence 'absolute' so far as that group or series is concerned. The other members of the group are dependent, and only to be understood as in various ways subordinate to the dominant principle. Now we may abstract the relation of order from the special subject-matter under investigation, and thus we may construct a universal mathematics, a most general science of order, dealing with all its implications, and superior in generality to the particular branches of the subject as usually treated. Descartes gave the title *Géométrie* to the Essay in which he laid the foundations of this general science; but he deals with principles whose applicability is not limited to geometry. In fact he thought of them as not limited to mathematics at all, in the ordinary meaning of the term, but as the foundation of an all-embracing science. Not only mathematical objects but all the objects of our knowledge fall under the conception of Order as defined above. It is clear that the primary problem is to recognize the fundamental or constitutive element in the group or series before us. It is recognized by its intuitive or self-evident character; in other words, it is given by 'the evident conception of a healthy and attentive mind, so clear and distinct that no doubt

remains'. Having discovered the fundamental element in the group, we proceed to investigate the different ways in which the other members of the group enter into relation with it and depend upon it. Here deduction comes into play to show the dependence of one term upon the others; and in the case of a long chain of intervening links, the problem for intelligence is so to grasp every element, and so to repeat the connexion, that we may finally grasp all the links of the chain in one. In this way we bring the fundamental or causal factor and its remotest dependent factor immediately together, and attain a systematic knowledge, derived from knowledge that is primary and intuitive.

This idea of Intuition is vital to the understanding of the Cartesian method, and is the basis of the Rules given in the *Discours* and the *Regulae*. Things differ in complexity and simplicity, in their dependence and independence, in derivation and immediacy. When we have found something which as it were resists decomposition, something apprehended so clearly and distinctly that the mind cannot divide it into any parts which can be more distinctly known, then we have found a primary, fundamental, and causal factor. Such, in the Cartesian view, is *extension*, in the case of corporeal things, with its modifications of figure and movement. These 'simple natures' are seen by a direct vision exempt from illusion and error; and from these we can in our understanding reconstruct the more complex objects before us.

One in its nature, always identical with itself in its procedure, the method is one in its applications: it will not differ whether it is concerned with mental or

material facts. All the sciences collectively are nothing else than the intelligence of man, always one and the same, however various are the objects to which it is applied. Sciences the most diverse are only factors in a single organic whole. Nevertheless, in the Cartesian view, the unity of the method does not necessarily imply the fundamental unity of things: far from it. If at the end of the analysis the mind finds itself in the presence of a plurality of simple notions, irreducible to one another, then it will really be in the presence of things irreducible and distinct.

iii. *The Material Universe.*

The next stage, beyond the simplicity of general mathematics, is that of general physics. Descartes finds that ancient and medieval physics neglected the conception of natural Law, and sought to explain phenomena by super-phenomenal principles, such as 'substantial forms'. In his view, this was really to assume a second world, a useless doubling of the world of perception. On the other hand, the scientific investigators of his own age, Galileo, Harvey, Vesalius, and others, had indeed made very important particular discoveries and formulated laws on this basis, but there was not yet a general theory of physics.

We have seen that the Cartesian method requires the resolution of every object into the most simple, clear, and distinct conceptions beyond which the mind cannot go. In the case of corporeal things, this is to resolve them into the mathematical elements of extension, figure, and movement. In his third *Meditation* Descartes explains fully how he is led to this conclusion.

In the experience of corporeal objects he finds only a limited number of conditions which he can conceive clearly and distinctly: these are, magnitude, or rather extension, in three dimensions, figures formed by limiting this extension, positions or situations which bodies of varying figure hold in relation to one another, and movement or change of position; 'to which may be added, substance, duration, and number.' As to the other qualities, light, colour, sound, odour, taste, heat, cold, and other qualities which enter into our experience: they involve (when thought about) so much obscurity and confusion that he is not prepared to say whether they are true or false.

This conception of matter as consisting essentially of extension in three dimensions has far-reaching consequences in the Cartesian philosophy of Nature. In some directions it led Descartes to take up positions now long since abandoned; in other directions it led him on to brilliant anticipations of theories now generally accepted as sound.

There can be no such thing as empty space. All that we mean when we speak of a place as empty is, that it has not its usual contents. A cup, for instance, is said to be 'empty' when it has 'nothing in it' though it is full of air. Descartes dwells on such considerations in support of the theory, deduced directly from his definition of matter, that a *vacuum* is inconceivable. In the same way he concludes that matter, as identified with extension, is not resolvable into ultimate atoms, but is infinitely divisible; that it is homogeneous throughout the universe; and that its apparent varieties are distinguished only by the different division and movement

of its parts. These two ways of thinking about the constitution of bodies—the one in principle identical with that of Descartes, the other affirming that matter consists of ultimately indivisible particles—have had their adherents in ancient and modern times. James Clerk Maxwell said that they correspond to the two methods of treating *quantity*—the geometrical and the arithmetical. To those who identify matter with extension, the volume of space occupied by a body is the only measure of its 'mass' or the quantity of matter in it. To the atomist the only true method of estimating the quantity of matter in a body is to count the atoms in it. It is well known that at the present day a greatly revised and generalized version of the atomic theory holds the field.

Nevertheless some of the statements made by Descartes point in the direction of the recent doctrine of Relativity. Two of these may be quoted here. In the *Principia* (part ii, sections 22 and following) he argues that motion is purely relative, and should not be defined in the usual way as 'change of place'—as if 'place' were something independently existing and without share in the change—but as 'the motion of a body from the vicinity of those which are in immediate contact with it to the vicinity of others'. Unless we name the correlative objects, we allow our senses to leave us with a false conception of motion. A pilot who stands still upon a ship seems to be at rest, as long as we do not look beyond the limits of the vessel. But if we are coasting within sight of land, we say he has the movement of the craft and all that is in it. And if he could sail westward as fast as the earth spins eastward, he

would make the circuit of the earth and yet see the sun almost stationary in the heavens. He is at once in motion and at rest, according to the confines with which we choose to compare him. And again, in the *Principia* (part i, section 57) he distinguishes duration and time, the former as a real quality of that which endures, the latter as the way we have of thinking about that duration: 'If two bodies are in motion for an hour, the one fast and the other slow, we do not credit the one with more time than the other, though we assume more motion in it. But in order to bring the duration of all things under one and the same measure, we resort to the duration of certain regular movements which form days and years, and call it *time* after having thus compared it; though the fact is that what we so call is nothing, over and above the real duration of the things, but a way of thinking.'

The suggestion is, therefore, that science does not, any more than common sense, require us to think of space and time as independently existing forms or conditions, 'in' which things take place, and which might exist without anything 'in' them. Space and time are essentially related to one another and to the objects or events which they qualify. If Descartes had followed up the implications of these suggestions, his own theory of an unlimited homogeneous extension would have been fundamentally modified.[1]

The physical theory of the world actually worked out by Descartes is one of extraordinary ingenuity and

[1] For a careful account of the difficulties to which this theory leads in the explanation of motion, see *Studies in the Cartesian Philosophy*, by Professor N. Kemp Smith.

originality, especially in its once celebrated hypothesis of 'vortices', based on the assumption that an innumerable host of approximately circular movements, vortices, or whirlpools of material particles, must necessarily occur throughout the Universe at every moment of time. A great deal of the Cartesian theory is obsolete, and no special discussion of it is called for here. But it is characterized throughout by a remarkably thorough and comprehensive application of the principle of mechanism in the explanation of nature. Descartes was not content with the endeavour to explain the phenomena of gravitation, heat, light, magnetism, and similar forces by means of the movements of his vortices; chemistry and physiology are alike swallowed up in the one science of physics and reduced to a problem of mechanism. Every living thing is regarded as a machine, and all its movements are to be explained on purely mechanical principles. The Laws of Nature are all at bottom Laws of Motion, and nothing more. He never doubts that it is God who communicates motion to extension, and sustains that motion from moment to moment: but God has so limited his creative and sustaining activity that *Nature is a machine*; and in this assumption Descartes was a prophet anticipating the principle of nineteenth-century science.

iv. *God as the Ground of Truth.*

The Cartesian mathematics and physics, considered alone, might lead us to regard Descartes as a precursor of modern agnostic Positivism. But Positivism limits our knowledge to phenomena and their laws, and for-

bids human knowledge to go beyond the like and unlike, the synchronous and successive—classification and temporal uniformity. Descartes, on the other hand, affirms with certainty the existence of God and the possibility of knowing him, and closes the circle of his thought by making the world of bodies and souls depend on this first principle.

Historically, the conception of method set forth by Descartes was evolved from his mathematical studies; but logically the method comes first, and from the method follows mathematics and then physics. But is this system of clear and distinct ideas a pure conception of the mind or has it a corresponding reality? Does the order of our thought correspond to that of reality? Science cannot answer this question, and yet for science it must be answered. Ideas in themselves have neither truth nor falsity; they are only conditions of my thought. Truth or error can only arise when *judgement* affirms or denies the objective truth of an idea. Hence 'doubt' arises—'doubt' deliberately adopted as a method of procedure. The possibility of doubting the truth of science compels us to examine the extent to which doubt can be carried. Then, let scepticism be pushed to the utmost limit of possibility; let everything which admits of being questioned be supposed false; whatever then remains, when doubt has done its worst, must be the immutable basis of certainty. Now though all else be in doubt, *my doubts* at least are real. I cannot both have them and deny them, and in knowing them as mine, I know that I exist: *cogito, ergo sum*; *je pense, donc je suis*. 'Thus I learn', he says, 'that I am a substantive being whose nature or essence it is to think, and

to have, for its existence, no need of place or of any material thing; so that this self or soul, whereby I am what I am, is entirely distinct from body, and would not cease to be though body were not.' He uses the word 'think' in a broad sense, including perception, memory, imagination, desire, will, as well as the more strictly intellectual operations of mind. In the fact of self-consciousness, so understood, thought and existence are indissolubly united. The *cogito, ergo sum* is not an inference; it is the necessary double expression of a unique fact. The clearness and distinctness, with which these indissoluble aspects of the unique fact appear to me, is the ground of trust in the validity of the *cogito, ergo sum*.

The next step is to realize that many of my ideas are clear and distinct without involving the immediate experience of existence as the idea of self does. I can only infer their possible validity; possible existence is contained in the idea of everything which we conceive clearly and distinctly. In all such cases, how can we pass to reality? By the idea and existence of God. I have, says Descartes, the idea of a supremely perfect Being, eternal, omniscient, omnipotent, dependent on nothing beyond himself for his being. This is not the idea of an immediately experienced existence like that of my own being. Is it then an idea which I may have fashioned out of the resources of my own mind?

To answer this question, Descartes first points out that the idea of God involves the contrast between perfection and imperfection. We actually experience and are aware of this contrast. What does this experience imply? In the third *Meditation*, where this

argument is expounded with great force, he asks, 'How could I doubt or desire, how could I be conscious, that is to say, that anything is wanting to me, and that I am not altogether perfect, if I had not within me the idea of a being more perfect than myself, by comparison with whom I recognize the defects of my own nature?' And he proceeds to press the question, how could I possibly acquire such an idea if there is nothing in reality corresponding to it? The conclusion is that our idea of a perfect Being implies the existence of such a Being; in other words, the existence of God. In this connexion he introduces another argument based on the idea of causation. I do not owe my own existence—either originally or from moment to moment—to myself or to other beings such as I am; there must be a primary and fundamental cause, which is God.

In the fifth *Meditation*, and again in the *Principia* (book i, section 14), Descartes brings forward a third argument for the being of God. It is of historic interest as being a revival of the famous 'Ontological Argument', formulated by Anselm of Canterbury five centuries earlier, and neglected or criticized by religious thinkers in the interval. The argument is as follows. Just as from the nature of a triangle it follows that the sum of its angles is equal to two right angles, so from the nature of God it follows that he exists. For when we use the name 'God' we mean the absolutely perfect Being; now existence is a perfection, hence existence is inseparable from God's essence, and hence God exists. The point is that necessary and eternal existence is implied in the idea of an all-perfect Being; and the argument rests on the very questionable assumption that *being* is a quality

like wisdom or power, instead of the necessary basis of all qualities.

Contemporary critics pointed out that Descartes accepts the idea of God too uncritically, from education, tradition, and previous philosophy. His God is partly the Absolute of metaphysics, that which depends on nothing beyond itself but on which all else depends; and partly the personal creative God of Christian theology. But a more sympathetic consideration of his statements reveals his fundamental idea as that of an all-perfect Being. It is the positive idea of a Being who is for ever beyond us but *on our own line*; and he argues from the fact that what this one of my own ideas stands for is something indefinitely greater than my own reality.

God, as all-powerful, is able to produce everything that we can conceive distinctly. But has he done so? The answer is found in the very idea of God. I find in myself an almost irresistible inclination to believe that there are independent realities corresponding to my clear and distinct ideas. Is this 'inclination' trustworthy? The first principle of the divine nature, in relation to us, Descartes takes to be veracity. 'God is absolutely true, and the Giver of all light; it is therefore impossible that he should deceive us, or, in the literal and positive sense, be the cause of the errors to which, as experience shows, we are subject.' We fall into errors because we ourselves choose to affirm or deny beyond the range of our clear and distinct ideas, as for instance when we assume that there is a resemblance between heat as existing in the fire and heat as felt by us.

This confidence in the 'veracity of God'—which

really means a confidence in the rationality of the universe—is the ground on which the trustworthiness of all science rests. Our idea of extension, the implications of which have already been explained, vouches for the reality of the material world characterized by that distinctive quality: and the reality of all particular things which our nature permits us to see in it, is established by the same argument, from the veracity of God, provided we find in ourselves the means of correcting and clearing whatever is confused in our first ideas of things. The veracity of God also guarantees his use of the power of absolutely free voluntary creation, which Descartes assumes to be included in supreme Perfection. This freedom is not the negation of science. 'You will be told', he said to his friend Mersenne, 'that if God has established these truths, he can change them as a King does with his laws; but I comprehend them as eternal and immutable, and I judge likewise of God.' For science, the immutability of God means the reign of law. The laws of physics are an expression of it. God acts, in nature, always according to the same principles and in the same manner; above all, in the simplest manner (*par les voies les plus simples*).

Finally we must notice here that if the self and the external world, on the Cartesian view, stand on the same level as regards positive existence, they do not stand on the same level as regards certain knowledge. I not only have a clear and distinct idea of myself but an immediate experience of myself in and through my mental activities. But the corporeal world I know only because, relying on the veracity of God, I assume that my clear and distinct idea of extension has a counterpart

in reality. Descartes sets out in the faith, native to our intellect, that it is possible for us to know things as they really are; and then he proceeds to dig a gulf between his knowledge and the real things which he knows or believes that he knows. Yet if he is a being whose essence consists in thinking, it is necessary that he should think *something*; and when the thinking becomes knowledge, this means that the thinker comes into direct relation with the object known. My knowledge even of the table before me may be in some ways very imperfect; but so far as I know it at all, I know it as directly as I know my own mental activities. There is no difficulty about this if we once admit that we belong to the world which we know and that there is no gulf to be bridged.[1]

v. *Mind and Body.*

We have explained the Cartesian view of the essence of Mind. This term is preferable to 'soul', the usual rendering of the Cartesian *l'âme*. I am aware in myself of a number of activities, understanding, conceiving, affirming, denying, doubting, willing, and so forth, which all resemble one another in that they cannot come to be without 'perception or consciousness or thought'. This is the essence of mind. It follows immediately that body and mind are irreducible the one to the other. Extension, the essence of body, implies nothing of thought; thought, the essence of mind, implies nothing of extension. It follows further that

[1] For a forcible statement of what this contention implies, see *The Idea of God*, by Professor A. S. Pringle-Pattison, ch. vi: 'Man as organic to the World.'

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the mind is always thinking; if it ceased to think it would lose its essence and cease to exist. To understand this conclusion we must remember that by 'thought' Descartes understands not only intellectual acts of judgement and reasoning but every activity of consciousness, clear or obscure. There are two main branches of thought thus conceived: 'understanding' and 'will'.

The end of understanding is knowledge (*connaissance*), the intuition of clear and distinct ideas. These ideas, which in being detached from sense-impressions constitute science, are previously in us in a *latent* or *innate* form. In this form they are potentialities which may never become actual. The infant has them as real possibilities of thought. The adult has them when he is not thinking of them.

The intuitive knowledge which alone deserves the name of science is at bottom a divine illumination of the mind through which it sees truths which it pleases God to reveal by a direct impression of his light on our understanding. Understanding is so far not to be regarded as active but only as *receiving* the divine illumination. Will, on the other hand, is active. It is essentially the adoption of an idea, the affirmation of its reality, thus completing the act of understanding, which is only the intuition of the idea. Science is then in the last analysis the consent of the will to the necessary and eternal ideas proceeding from God to the human understanding. The act of will is not only a choice but a free choice, though not a motiveless one. In affirming or denying, adopting or rejecting what the understanding proposes to us, we feel absolutely no

external force constraining us. The essential thing is to judge well. Human merit lies in attention. We are not able always to maintain perfect attention to the things which we ought to do; but the will ought never to be indifferent to the light of the understanding. A good action is one in which the will follows that light as closely as possible.

How then does Descartes conceive mind and body to be united? The body, as part of nature, is a machine; but the finest and as it were the most 'ethereal' form of mechanism is found in the 'animal spirits', which—according to a physiological theory now long obsolete—Descartes assumed to be produced in the brain and transmitted to the nerves leading to and from the organs of sensation and motion. This brings us to the theory of the interaction of mind and body, which, it must be remembered, was never doubted by Descartes. Nature, as a vast machine of machines, has no place for mental activity. But there is one small organ at the back of the human brain, not duplicated, which may in a sense be called the seat of mind. This is the 'pineal gland', where the mind on the one hand and the animal spirits on the other meet and communicate; 'thought' meets extension and directs it; 'extension' moves towards thought and is perceived. The crudity of this assumption in reference to the 'seat of the soul' does not mean that the Cartesian view of the connexion of mind and body is of no importance. Descartes worked it out with great care in the fourth book of the *Principia*, in the *Passions de l'âme*, and elsewhere. He is convinced that the possibility of interaction is not excluded by the complete unlikeness in nature of the body and the mind. The

mind, however, does not create new movements of matter; in other words, it does not increase or diminish *the quantity of motion* in the universe. It influences the *direction of motion* and so becomes an agent in the course of events.

The thorough-going 'dualism' of mind and body to which Descartes commits himself has important consequences for his psychology as well as for his theory of knowledge. In treating of perception through the senses, of imagination, and of the 'passions', he is obliged on the one hand to accept them as modes of thinking, and on the other to admit that they could not exist without the body. The inevitable conclusion is to regard them as compounds, or—to employ a favourite term of the Cartesians—'confused' states. From infancy onwards, the will has allowed itself to assent precipitately to all sorts of impressions received by way of the senses and the imagination, and thought has thus become filled with obscure ideas. The clarification of these, through the understanding, by means of attention, detaches the latent clear and distinct ideas which are really the effects of divine illumination.

In the case of the 'passions'—which are those emotions directly dependent, at least in part, on bodily conditions—Descartes almost anticipates a doctrine familiar in the recent history of psychology. When, for example, through sense-perception we contemplate the arrival of some good, the perception does not immediately and of itself carry the emotion of joy. It stimulates the 'animal spirits', which pass directly from the brain to nerves controlling the heart and other organs, and the reflex effect of these movements is felt

as joy at the head-quarters of the mind. There are, however, emotions which are not even in part dependent upon bodily conditions. When we are told a piece of news, the mind first considers whether it is good or bad; if good, it is affected by a kind of joy which is completely independent of bodily changes: although as soon as this joy affects the *imagination*, the process which we have just described is set going and terminates in the sensory consciousness. The 'passions', then, including the natural appetites, and love, hate, fear, anger, and a long list besides, are compound states induced by the contact of the mind with nerves controlling various movements. They are wholly different from the *desire and will* we have to eat and drink, and the *idea* we have of what is to be loved, feared, and so forth, with the purely *spiritual emotion* which this idea may arouse.

vi. *Three famous Cartesians.*

We now come to a matter of metaphysical terminology which acquired fundamental importance in the after-influence of the Cartesian philosophy.

No sooner has Descartes reached his first solid basis than the notion of 'substance' steps into his thinking; the mind becomes a 'substance which thinks', set over against the 'substance extended'. What is this notion of 'substance', which was destined to play so strange a part in subsequent philosophy? Descartes borrowed the idea from the scholastic philosophers of the Middle Ages. He was aware of its general meaning: *res per se subsistens*—that which depends upon nothing but itself for its existence. In strictness this is true only of

God. But he applies the name 'substance' to mind and matter in a *relative* sense; in other words, because mind does not depend on matter for its existence, nor matter upon mind. Thus, in the *Principia* (book i, section 51) he observes: 'The Schoolmen are right in saying that the word Substance is not *univocal* in regard to God and his creatures, i.e., there is no distinctly conceived meaning of the word which fits at once him and them; but since, among created things, there are some of such a nature as to be incapable of existence without others (for instance *memory* without mind), we distinguish these from such as need only the ordinary *concursus Dei*, by calling the latter *substances*, the former *qualities or attributes* of these substances.' This corresponds to the scholastic definition of substance as *id quod substat accidentibus*; although the latter definition really arose from the distinction between the qualities of a thing which are essential to it and actually make it what it is, and the qualities which may change without destroying the nature of the thing—the *colour*, for example, of a rose. Descartes, however, frankly takes up this term 'substance', without any critical examination of its applicability, and uses it in this way of God, of finite minds, and of matter.

What does the 'substantial' existence, which Descartes allows to mind and matter, actually amount to? In his third *Meditation*, and elsewhere, he lays down the doctrine that 'the conservation of a substance at each moment of its duration requires the same power and act which would be necessary to create it, supposing it were not yet in existence'. As the world was originally called into existence by a fiat of the Divine Will, so it

owes the continuance of its existence from moment to moment only to the unremitting perseverance of the same volition. Let the sustaining energy of the Divine Will cease but for an instant, and the Universe lapses into nothingness. The existence of all things in the heavens above and the earth beneath is maintained only by a creation as it were incessantly renewed, according to an order which we can learn and formulate in our conception of Laws of Nature. Apart from the wills of men and other created rational beings, there are no 'secondary causes'; in other words, no real agents producing results by putting forth energy of any kind. When one billiard ball strikes another and moves it, it is convenient to call the moving ball a 'cause'; but the only real *agency* in the case is that of Deity. The contact of the two balls is the occasion on which God exerts a definite kind of efficient causation.

Now this assumption, if it is valid at all, may equally well be applied to the case of interaction of mind and body. Some of the ablest followers of Descartes saw this. It is surprising that he did not see it himself, especially since his explanation of the contact of mind and body utterly fails to satisfy his own test of a true idea: it is the reverse of 'clear and distinct'. When, for example, I am listening to music, and my sense is affected by the waves of sound, and the resulting nerve-currents—Descartes would say, movements of the 'animal spirits'—are transmitted to my brain: then we may equally well assume that the brain does not *cause* any mental change, but that God, by a law which he has established, produces a corresponding modification in the mind—a series of sound-sensations. And in like

manner, when I will to move my arm, my volition does not directly become an efficient cause in the corporeal world, but God causes the corresponding movement in the limb.

This doctrine of the relation of mind and body is known as 'occasionalism'; but as the Cartesians who held it extended it to every case of apparent causation between created things, it is convenient to use the term in this comprehensive sense. One of the ablest of them was Arnold Geulincx, who was born in Antwerp in 1625. He studied in Louvain, and afterwards taught philosophy in Leiden, where he died in 1669. A fundamental assumption of his system is that all *activity* worthy of the name, such as is not a mere channel for conveying a foreign agency or force, is always done in the light of intelligence. The agent knows *that* he acts and *how* he acts. Occasionalism is the inevitable consequence in reference to events in the external world, and above all in reference to the movements of my own body. These are effects of which I am not the author, because I do not know how they are accomplished (*quod nescis quomodo fiat, id non facis*). By a natural but gross illusion I imagine myself to be directing them. The true agent responsible for this organization of actions and movements is God, the Prime Mover, from whom every other apparent agent derives its apparent activity. Not that this divine causality wholly annihilates the secondary causality of our spirits. It endows them with something of itself, so that their volitions are real volitions, and it makes these volitions effective in the external world by so fashioning the correspondence of mind and body that every

mental change has its counterpart in a corresponding bodily change. Bodily movements and mental processes are therefore mere concomitants (*sine ulla alterius in alterum causalitate vel influxu*). Geulincx approaches nearly to absolute pantheism. His God is fundamentally the unity of which finite spirits are 'modes'; and if the finite 'mode' ceases to be, God remains (*sumus enim modi mentis, ut corpora particularia sunt modi corporis*; . . . *si auferas modum, remanet ipse Deus*).

Fifteen years younger than Descartes, and destined to survive him by more than forty years, was Antoine Arnauld, who may fairly be described as a Cartesian in the sense of a profound student and friendly critic and supporter of the system of Descartes. His place in the history of French thought is that of a great theologian and philosopher who was led to take a very prominent part in some far-reaching ecclesiastical controversies of the seventeenth century. He was born in Paris in 1612, and after studying at the Sorbonne was ordained to the priesthood in 1641; but his reading of Augustine and his own independent observations and reflections made him deeply dissatisfied with the condition of the Church in France. He gave up several benefices which he had obtained, and resolved to devote himself with his whole soul to the defence and propagation of what he believed to be truth. This brought him into conflict with the Jesuits, first as to the necessity of personal preparation and repentance as a condition of benefiting by the Sacraments, and then over an even more serious question. In 1640 Jansen, bishop of Ypres, had published his famous book *Augustinus*, in which he argued that the doctrines of Augustine on grace, free-will, and

redemption are opposed to those of the Jesuits. The dispute was brought down to the level of public comprehension in the brilliant *Lettres Provinciales* of Blaise Pascal, who came to Arnauld's defence in 1656. The chief *odium*, however, fell on Arnauld; and in 1679 he was obliged to take refuge in various places in Holland and Belgium. He died in Brussels in 1694.

His philosophical reputation rests on his correspondence with Descartes, Malebranche, and Leibniz, and on his work in Logic. The analysis of external perception was the main topic of his long philosophical discussion with Malebranche, in the course of which he published many letters and pamphlets, and fuller statements in *Des vraies et fausses idées* (1683) and *Réflexions philosophiques et théologiques* (1685). He strongly opposed a doctrine which he found in the writings of Malebranche, and which we shall explain below; namely that the objects of our knowledge are Ideas independent of the perceiving mind. Our perceptions, said Arnauld, are 'modalities (of mind) which are essentially representative'. Precisely in what sense he used the ambiguous term 'representative' is a question which would involve a discussion of many passages and would lead us far afield. But his general contention seems clear. When we suppose ourselves to perceive 'a real thing', we have a subjective mental process with a genuinely objective reference[1] to something other than itself and not mental in nature; and in this objective reference consists its truth or error as the case may be. Malebranche, on the other hand, seems

[1] The word 'objective' is here used in its modern and not in its Cartesian sense.

unable to understand how a state of one 'substance' can be a 'representation' of a state of another 'substance' in such a way that by means of the former we may *know* the latter.

Nicole Malebranche, son of a royal secretary in Paris, was born in August 1638 (six years after the birth of Spinoza, and twelve years before the death of Descartes). At the age of twenty-two he entered the theological course at the Sorbonne, with a view to the priesthood; but theology and church history, as presented there, laid no hold upon him. He declined a canonry in Notre Dame, and for purposes of further study joined the congregation of the Oratorians. At last, in 1664, as it were by chance, he happened to read Descartes' posthumous *Traité de l'homme*. This aroused his slumbering gifts, and from that hour he resolved to devote himself to philosophy. After ten years' study of the works of Descartes, he produced the famous *Récherche de la Vérité*, followed at intervals by other works both speculative and controversial. The most important of these is the *Entretiens sur la Métaphysique et sur la Religion* (1688). Although he was no recluse, his life was essentially that of a thinker, finding his inspiration in communion with himself, with Nature, and with God. He died in Paris in October 1715.

His philosophy is a Cartesianism moulded by a strong religious interest, and in particular by the influence of Augustine. Descartes emphasized the importance of order, clearness, and distinctness in our ideas because by their means we are able to satisfy our rational nature and find means of guiding and ameliorating human life. Malebranche also is moved by the speculative interest;

but his practical interest is before all else religious. He desires to strengthen the union between God and the soul, which has been weakened by sin. On the other hand, his philosophy is no mere 'handmaid of theology'; he appeals resolutely to Reason from first to last. He follows Descartes closely in his view of method, of the basis of certainty, and of the origin of error (in the will). But while holding that self-conscious experience reveals to us at once our thinking and our existence, he points out that it is not in ourselves that we find a *clear idea* of the soul; and he endeavours by reasoning to reach the conclusion of its simplicity and immateriality. The *Récherche de la Vérité* contains some fine psychological work; but here we can only dwell on those aspects of the philosophy of Malebranche which are of special importance in the history of Cartesianism.

He affirms the entire *concomitance* of mental and corporeal changes, without interaction: the idea of a finite spirit contains no implication of capacity to cause material action. In fact, there is no direct causation, in the sense of exertion of force, between one body and another, any more than between body and mind. Every material movement is only the occasion for the occurrence of another. We must not imagine that what precedes a change is the real cause of it. Agency, properly so called, that is, any exercise of force or power, is never a property of created things, but of God alone; and God acts, through created things, according to *the order of occasional causes* which he has ordained. Here is a typical statement on this subject by Malebranche, in the *Entretiens*, part vii: 'Suppose that this ball is rolled, and that in the line of its motion it impinges on

another at rest; experience tells us that this other will without fail be set in motion according to certain proportions exactly observed. But it is not the first that moves the second. For one body cannot move another without communicating to it some of the motive force. But the motive force of a body in motion is only the will of the Creator preserving it successively in different places; it is not a quality belonging to the body.'

Malebranche admits that there is no proof of the existence of concrete material bodies with properties corresponding to our sense-impressions, as of colour, sound, and so forth. Logically, his position is one of pure idealism, and invites comparison with that of Berkeley. But he recoils from this extreme conclusion, and falls back on the Biblical revelation of a material world created by God. We have no direct or immediate perception of bodies. This is affirmed on the ground of the same difficulties which are brought against the doctrine of interaction: how can either mind or body produce such direct perceptions? The object which is nearest the mind, and is the immediate object when it perceives, is the Idea.[1] The Idea is distinct from the object, and can exist when there is no object (as in hallucination); it is distinct also from sense-impression and emotion; and above all, it is *distinct from my thinking*, of which it is not a mere modification. It has a nature and properties of its own. He finds illustrations of this in Geometry, as when we draw consequences from a definition. This brings Malebranche to the central doctrine in his philosophy, that 'we see all things in

[1] As this is an important technical term, we spell it with a capital.

God'. In God there must be Ideas of all things created, for else he could not have created them; and God is in intimate compresence with our minds, and hence our minds are in contact with the very seat of all Ideas. God, it is assumed, leaves this infinite store open to our minds; in other words, he endows us with the ideal capacity for it. Thus the problem of our knowledge is solved. All Ideas of material things are summed up in extension, which is no abstraction from individual bodies, but an *archetypal* Idea of the infinite objective basis of all material things. The extension, figure, and motion of individual bodies are only limitations of this pure Idea of extension.

Malebranche generalizes this conclusion. We have the Idea of the Infinite, which cannot proceed from finite resources. And, what is more, we have it earlier than the idea of the finite, because the finite can be thought only as a limitation within the Infinite. The very ground, therefore, of our thinking is the one boundless and universal Being, and the process of our thinking is a communion with his Ideas.

'When I tell you,' says Malebranche, 'that God is in the universe and infinitely beyond it, you do not enter into my thought if you suppose that the universe and space, as we imagine it, are, so to speak, the place which is occupied by the infinite substance of the Divinity. God is in the universe only because the universe is in God; for God is in himself alone, in his immensity. . . . Extension is a reality, and in the Infinite all realities are found. God then is extended, inasmuch as he possesses *all absolute realities*, that is, all perfections; but he is not extended after the manner of bodies, not having the limitations and imperfections of his creatures.'

God, therefore, is not *a Being*. He is *all Being*, universal Being, covering the whole of what exists:

'The idea of God, that is, of Being in general, Being without restriction, Infinite Being, is no figment of the mind of a composite nature which can involve a contradiction: nothing can be simpler, although it embraces whatever exists or can exist. This simple or natural idea of *Being or the Infinite* includes necessary existence; for evidently Being (I do not say, *a particular being*) has existence *per se*, and a Being cannot but actually be. . . . Those who do not see that God exists are not thinking of *Being at its full scope*, but of an individual being, and therefore of something which either may or may not exist. . . . That clear, intimate, necessary idea of God, of Being without any special restriction, of Being in general, which presents itself to the human mind, acts on it more powerfully than the presence of all finite objects.'[1]

We have quoted these passages because they show us Malebranche moving away from Descartes' position in the direction of the position taken, with full consciousness of its significance, by his great contemporary Spinoza.

[1] The English version of the foregoing passages is that of Martineau, *Types of Ethical Theory*, Book I, ch. ii.

III

SPINOZA

i. *His Life and Personality.*

Baruch Spinoza, or, as he afterwards signed himself, Benedict de Spinoza, was born in Amsterdam in November 1632. At that time Descartes, aged 26, was living in Holland, but his principal works were yet to be published. Spinoza belonged to a family of Spanish Jews, one of the many families driven into exile by the revival of persecution which took place in the Spanish peninsula towards the end of the sixteenth century. A considerable number migrated to the Netherlands, at that time the only country in Europe where a colony of Jews could hope to settle with tolerable freedom from disturbance. The experiment succeeded; the colony prospered, and soon attracted more settlers. Among Rembrandt's paintings are portraits of many of the great Jewish merchants of that time.

At an early age Spinoza became familiar with the Talmud and, what was probably more important for his own development, with the principal representatives of Jewish Medieval thought. His mastery of Latin opened to him the world of contemporary philosophy and science. He eagerly studied the works of Descartes; and he did not conceal his capacity and inclination to think for himself. The stories that are told of this part of his life are fragmentary; but it is clear that the authorities of the synagogue were led to regard him as a person whose opinions were dangerous. It was not merely a matter of speculative orthodoxy. The Jewish synagogue

existed entirely on sufferance in Amsterdam; its leaders believed that they were tolerated only on condition of being as orthodox as it was possible for Jews to be, and that if any kind of heterodoxy were allowed among them, they might lose the sufferance which they had so far enjoyed. The result was that Spinoza received strong hints to keep his opinions to himself, and to maintain at least outward conformity to the traditions of the synagogue. He even received offers of substantial reward on these terms. But he was found inflexible, and at length was solemnly excommunicated. This was in 1656, when he was not quite 24 years of age.

He took the excommunication as a natural and inevitable consequence of his own convictions; and having been in this way shut out from obtaining, as he easily might have done, a position of prosperity and honour among his own people, he betook himself to making a living by grinding lenses for optical instruments. His work, it appears, was of special excellence. He had taken up his abode with a friend who lived a few miles out of Amsterdam, and who belonged to the Collegiants, a religious society which had sprung up among the proscribed Arminians of Holland. The pure morality and simple-minded piety of this community seem to have won his unfeigned respect. In this quiet retreat he found time for concentrated study and thought; and a number of the younger men in Amsterdam—students and others—came to regard him as their intellectual leader. It was during this time that he wrote his *Short Treatise on God, Man, and his Well-being*, which contains a version of his leading thoughts as they were before he had entirely parted company with Descartes.

It was not printed during his lifetime, and dropped out of knowledge until the middle of the nineteenth century, when two Dutch translations were discovered. A scholarly English translation, with introduction and notes, has been published (1910) by Professor A. Wolf.

Early in 1661 he removed to Rhinsburg, near Leiden. Soon after this began his correspondence with Henry Oldenburg, the first Secretary of the Royal Society in London. But his first task was to make a systematic statement of the method which he proposed to substitute for that of Descartes. This he did in the *De Intellectus Emendatione*, 'On the Improvement of the Understanding,' in which he set forth the purpose of philosophical inquiry and the successive stages by which its supreme object may be obtained. He left this treatise unfinished in order to concentrate on the constructive exposition of his system in the *Ethica*, which he began towards the end of 1662, and apparently finished in the summer of 1665. The famous treatise is called *Ethica More Geometrico Demonstrata*. At the beginning of each book, after the manner of Euclid, are placed a certain number of 'definitions', 'axioms', and 'postulates', which are supposed to be intuitively certain, and to form a sufficient basis for all that follows. Altogether there are 27 'definitions', 20 'axioms', and 8 'postulates'. The method of exposition conceals rather than reveals the unity of the thought. We have to distinguish the substance from the form. The author himself is often driven to drop the deductive method, and to insert explanations, notes, and appendices. Why did Spinoza adopt this form? He

did not regard it as security against error; while he was working hard at his *Ethica*, he adopted the same method for an exposition of the metaphysics of Descartes when he did not himself accept the Cartesian system (this was published in 1663, thirteen years after the death of Descartes).

It has been well said that 'what in the first instance recommends the geometrical method to Spinoza is, not only its apparent exactness and the necessity of its sequence, but, so to speak, its disinterestedness'. Confusion of thought arises from the fact that we put ourselves, our desires and feelings and interests, into our view of things. We look for some 'final cause', that is, some relation to ourselves by which they may be explained. For this reason, he says, 'the truth might for ever have remained hid from the human race, if mathematics, which looks not to the final cause of figures but to their essential nature and the properties involved in it, had not set *another type of knowledge* before them.' To take a mathematical view of the universe, therefore, is to raise ourselves above all consideration of the end or tendency of things, above the fears and hopes of mortality, into the region of truth and necessity.

'When I turned my mind to these subjects,' he says, in the introduction to his last and unfinished *Political Treatise*, 'I did not propose to myself any novel or strange aim, but simply to demonstrate by certain and indubitable reason those things which agree best with practice. And in order that I might inquire into the matters of this science with the same freedom of mind with which we are accustomed to treat lines and surfaces in mathematics, I determined not to laugh or weep over the actions of men, but simply to understand them;

and to contemplate their affections and passions, such as love, hate, anger, envy, arrogance, pity, and all other disturbances of soul not as vices of human nature, but as properties pertaining to it in the same way as heat, cold, storm, thunder, pertain to the nature of the atmosphere. For these, though troublesome, are yet necessary, and have certain causes through which we may come to understand them, and thus, by contemplating them in their truth, gain for our minds as much joy as by the knowledge of things that are pleasing to the senses.'

In 1663 Spinoza removed to the suburbs of The Hague, and afterwards (1670) into the city itself, where he spent the remaining years of his life in the frugal independence which he prized. He spent the greater part of his time in his own chamber, often not leaving the house for days together when he was absorbed in his studies. He enjoyed intercourse, from time to time, on lighter and on more serious topics with the simple folk with whom he lodged. He was interested in the local Lutheran pastor and sometimes went to hear him himself, and praised his learned expositions of Scripture and his appropriate applications. Once he was asked by his landlady, who may have heard strange stories of her solitary lodger, whether, in his opinion, she 'could be saved by her religion'. 'Your religion is a good one', said Spinoza; 'you need not look for another, nor doubt that you will be saved in it, provided that while you apply yourselves to piety you live at the same time a peaceable and quiet life'. The family were members of the Lutheran Church. Spinoza did not wish to interfere with the beliefs of simple-minded people who were not capable of following religious questions into the realms of theology and philosophy.

Meanwhile his reputation continued to spread. His friends—and others attracted by what they had heard of him—came to visit him in his lodgings, occasionally with offers of hospitality, which were courteously declined. His correspondence at this time shows that after he had completed his *Ethica* in the summer of 1665, he began a work which formed his chief occupation for the next four years. This was the *Tractatus Theologico-politicus*. When the book was published in 1670, the title-page described it as containing Essays intended to prove that Liberty of Philosophizing (that is, of using our natural reason) may be allowed without any injury to piety or the peace of the commonwealth, and that the loss of public peace and religion itself must necessarily follow when such Liberty is taken away. This book was almost the first comprehensive plea for toleration published in modern Europe. It was also the forerunner of modern Biblical criticism. It was published anonymously; and the storm of opposition which it encountered showed that this precaution was not out of place.

The argument of the book is based on a thoroughgoing distinction between theology (by which he means what we now call religion), which is concerned before all else with obedience and conduct; and philosophy, which is concerned, before all else, with knowledge and rational speculation. He evidently believed that the simple following of the Scriptures was enough for the vast majority of mankind. He would teach the ordinary religious man to tolerate the philosopher; but he also wished so to read the beliefs of the ordinary man as to make them not repugnant to philosophy.

The extent of his reputation was shown when in 1673 he received an invitation to quit his retirement and become professor of philosophy in the University of Heidelberg. The offer conveyed an assurance of 'the largest freedom of speech in philosophy, which the Prince is confident that you will not misuse to disturb the established religion'. Spinoza's experience of theological sensitiveness led him to doubt the possibility of keeping on friendly terms with 'the established religion' if he were placed in a public capacity. Moreover he was not strong; indeed he was already feeling the inroads of consumption; and he doubted his capacity for public work of this kind. For such reasons he courteously but firmly declined the offer. Soon afterwards we find him making plans for the publication of his *Ethica*; but even then, a report was put about that he had a book in the press 'to prove that there is no God': and he left the manuscript to be printed after his death. Early in 1677 Spinoza became seriously ill; and he died in February of that year. The posthumous works were published in the same year.

Then began a century of obloquy. David Hume's melodramatic reference to 'that famous atheist', and 'his hideous hypothesis' is a fair specimen of the tone in which he was usually spoken of. The first man in modern Europe who took hold of Spinoza in the right way was Lessing, the great restorer of literature and criticism in Germany. Then the spirit of Spinoza, which had been awakened in Lessing, took hold of Goethe: and to say that it took hold of Goethe is to say that it was established in the centre of the European movement of literature and civilization.

A friend of Spinoza, afterwards a fervent adherent of the Roman Catholic Church, described him as 'the Reformer of the New Philosophy' (i.e., of Cartesianism). Whether Spinoza ever regarded himself in this light or not, it may fairly be said that he might have done so from his own point of view. The significance of this is seen when we consider the use which Descartes makes of the *idea of God*. His theological expressions, when their literal meaning is pressed, seem to reveal serious philosophical defects in his system without any compensating gain in other respects. We might say that for Descartes the phenomena of Nature are essentially miraculous—the result of the incessant interference of a supernatural Deity. Not only are the two 'substances' created by God out of nothing, but God endows them with motion and maintains their motion. It is true that when we consider the Cartesian expressions in the light of the use made of them, we find that, to him, the essential aspect of the Divine activity, on which he lays supreme stress, is not *arbitrariness* but *immutability*. To believe in the existence of one's self as a rational or thinking being, in the existence of a world outside one's personal consciousness, which is relatively permanent and independent, and to which other similar rational beings are similarly related, and in the trustworthiness of those logical principles which lie at the basis of scientific reasoning, is to build upon principles which are *postulates* inasmuch as not only science but rational life is impossible without them. We necessarily proceed on the assumption that the world will not perpetually baffle our efforts to understand it, and put us to lasting intel-

lectual confusion; and this trust in the universe that it is rational is one kind or one direction of trust in God.

Nevertheless Descartes persists in the use of theological terminology which suggests that the rationality of the universe is only a matter of personal choice on the part of the Deity, and that the necessary laws of thought are arbitrarily fixed by Him. And even when we recognize the import of the assumption that God's action within the world of space and time is immutable and constant, we see also that the assumption is necessary for Descartes, to cover a serious defect in his system. Geometrical Extension, treated by him as a real 'substance', contains in itself nothing capable of explaining the origin and continuance of *motion*, which therefore has to be treated as a new factor added to extension by an outside Power. In this sense, it remains true that for Descartes the phenomena of Nature are essentially miraculous. All such assumptions are swept away by Spinoza, to make room for the primary and fundamental assumption that we must start with the whole if we desire to understand the part, since the nature of the part is derived from its relation to the whole.

ii. *Degrees of Knowledge.*

In the system of Spinoza, God is identical with the infinite universe, in which nothing ever happens arbitrarily, and of which 'Extension' and 'Thought' are 'Attributes' whose finite modes or modifications are the bodies and souls of ordinary experience: but in order to understand how Spinoza arrived at this conclusion and what he meant by it, we must in the first place under-

stand his view of the successive stages through which *knowledge* passes, in our experience, from its lowest to its highest form. Three stages are distinguished: *imaginatio*, *ratio*, *scientia intuitiva*.

(i) Spinoza's use of the word 'imagination' includes its ordinary meaning—a faculty of human nature whose distinctive product is the creation of mental imagery. But he extends its meaning to cover sense-perception and memory. He stresses to the utmost the difference between mental imagery and genuine thinking. It is possible for people to fancy that they are thinking about a thing, in the strict sense of the word 'thinking', when they are no more thinking about it than if they were asleep and dreaming of it. Such mental imagery consists at bottom of sense-memories combined in new ways. All sorts of possible and impossible combinations can be thus imagined—a man of great stature, a man walking on the water, &c. This may be called *picture-thinking*; and we cannot know God by this means. In a letter to Hugo Boxel, Spinoza insists that we cannot have a mental image of God, as we have of a triangle, for instance: we cannot *imagine* God, but we can *conceive* God. The worst defect of picture-thinking is that it prompts us to take things as entirely separate existences when in reality they are nothing of the kind. Thus I cannot *conceive* such a thing as a *house* clearly and distinctly, in all the relations of its parts to one another, without seeing its relation to the earth on which it stands and to many other physical and social facts. The circumstances which explain the possibility of the building make it impossible for me to conceive it apart from these other things. But I can *imagine* a house

by itself, as though it were an object capable of existing in entire isolation. To thought at this stage, anything is possible which can be imagined, and anything impossible which cannot be imagined.

This doctrine that the apparent separateness of things is only apparent has far-reaching results in Spinoza's philosophy. It means that Number belongs to the realm of appearance, not to that of reality. Here, however, a very important distinction must be made. So far as number implies what we have called Order—the conception of a group the members of which may be known through one another—it is a partial knowledge of reality and not mere appearance; it belongs to Reason (*ratio*). But so far as number is taken to imply mere counting, of units taken to be not only different but separate, it is only appearance.

The same doctrine bears directly upon the nature of science. If, for example, we try to explain the nature of the mind, as a finite thing, from the combination of separate sense-impressions and sense-memories, the result cannot be real knowledge. The initial assumption —of facts not only different but separate—is one of imagination. Spinoza himself makes suggestions towards a psychology on these lines; but he cannot have been unaware of its limitations.

(ii) Spinoza insists that we must face the truth that all thought is imperfect which stops short of the absolute unity of all things. Our notion of the world as made up of things side by side or one after another is mere imagination. The assumption is that, so far as knowledge deals with the finite, it is engaged in a continual process of self-correction, which can never be

completed, because at every step there is an element of falsity, when we let our minds rest in the contemplation of a certain number of the elements of the world as if they constituted a whole by themselves. They are only a part; the knowledge of them has to be modified at the next stage by considering their relation to other parts. 'We cannot stop', says Spinoza, 'short of conceiving the whole of Nature as one individual, whose parts, that is, all bodies, vary in infinite ways, without any change in the individual as a whole.' All nature is bound together by necessary laws, and not one atom could be other than it is without a change in the whole world. Hence it is only in the whole world that there is any individuality or 'substance'. And the same is true of the minds of men. Our separateness from one another is a mere semblance. Our single lives are bound up with the whole. Our minds are links in a great movement of spiritual life, and we are the organs and expressions of one of its phases.

Knowledge of this second kind may be adequate—and so far as it is so we are conscious of its adequacy (*qui veram habet ideam simul scit se veram habere ideam*)—but it may consist only of the apprehension of abstract general principles, such as the general laws of motion which belong to the essence of the material world. All these are *unifying principles*, but they are not the highest kind of knowledge.

(iii) The highest kind of knowledge is *concrete* and *intuitive*. Spinoza does not mean that it is a state of mind in which we believe but are unable to give any reason for the belief. It is an intellectual vision following on 'knowledge of the second kind', but going beyond

it. Ideally it would mean a vision of how each particular detail of the world sustains its place in the general scheme or falls into line with the whole. Short of this, we may apply the idea to any particular department of our intellectual world when analysis, reflection, investigation of the relations of things, have done their part, and we then see how the subject fits in to this particular field of knowledge. A simple illustration of a very individualized character is found in the fourth proposition of Euclid's first Book, where the so-called proof is simply a means of helping us to *see* that the two triangles are equal in all respects (Euclid's conception of space being taken for granted).

It has been well said that on Spinoza's principles, 'while the ordinary man may be said to be the unconscious and poverty-stricken heir to an unoccupied estate, the man of true and adequate ideas is in the position of an heir who has come into actual possession and fruition of his own.'

iii. *The Ideas of God and of Eternity.*

Spinoza's formal statement of what he means by Deity is contained in the Definitions which introduce the first part of the *Ethics*. Five of them must be quoted here in full.

> By the *Self-caused*, I mean that of which the essence involves existence, or that of which the nature is only conceivable as existent (i).
>
> By *Substance*, I mean that which is in itself and is conceived through itself: in other words, that of which a conception can be formed independently of any other conception (iii).
>
> By *Attribute*, I mean that which the intellect apprehends as constituting the essence of Substance (iv).

By *God*, I mean Being absolutely infinite: that is, Substance consisting in infinite Attributes, each of which expresses eternal and infinite essence (vi).

By *Eternity*, I mean existence itself, so far as it is conceived necessarily to follow solely from the definition of that which is eternal (viii).

These highly abstract statements together constitute Spinoza's definition of God, and contain by implication the leading ideas of his system. In their formal expression they give little indication of the fullness of meaning which that Name bore for him, unless it be in the explanatory note added to the sixth definition: 'that which is absolutely infinite *contains in its essence whatever expresses reality*.' It has been said that in these propositions Spinoza simply 'defines God into existence'. On the other hand, we may observe, with Professor Samuel Alexander:

'Spinoza's conception of God is none the worse for being presented as a definition. The great fundamental notions of philosophers are not proved; their truth is seen. Proofs are nothing but the machinery which helps others to secure the philosopher's vision. It may be doubted whether this is not true of every scientific principle too . . . at any rate Spinoza looked out upon the Universe and saw it as a unity and found God there. The greatest truths claim but to be statements of fact which the discoverer sees by looking out upon the world and finding them there. The only question is whether his view is pure or distorted or partial.'[1]

In a letter to his friend John Hudde, Spinoza says: 'Since the nature of God does not consist of a certain kind of being but of absolutely unlimited being, his nature requires all that perfectly expresses Being, other-

[1] *Spinoza and Time: A Lecture*, by S. Alexander (London, 1921), p. 59.

wise his nature would be limited and deficient; this being so, it follows that there can only exist one Being, namely God, which exists by its own sufficiency.' There we have the substance of the definitions more simply stated. Infinite Being is (*a*) dependent on itself alone for its existence and all that is involved therein, not, as finite beings always are, dependent in some way on other things; and (*b*) uniquely individual, or in Spinoza's terms 'in itself' and 'conceived by itself, alone', and not a member of a class. We form the idea of a being in a class by comparing it with other things of like nature; the thought of it is formed by the aid of the thought of other similar things. Such a being is necessarily 'finite' in Spinoza's sense, and can always at least be thought of as belonging to a class, simply because there are other things of the same nature. Spinoza expresses this by saying that it is 'limited by' other things of the same nature. Thus, the Sun in the heavens might seem a unique being, but it is not, for it is only one among innumerable stars. In like manner, a human soul is one of a class, and finite in the same sense.

The definition of Attribute introduces us to the most difficult and important point in Spinoza's philosophy. What exactly is the relation of 'Attribute' to 'Substance' or God? Taking the definition as it stands, we see that it contains a twofold statement: (*a*) Attribute = Essence of God; (*b*) Attribute = that which the intellect understands of Substance = that which we know of God.

What is implied in the first statement? Substance and attribute are not two separate things, like two closed circles falling outside one another; if they were

like that, then we might know the 'Attribute' through and through and yet know nothing about the 'Substance' to which it belongs. This is agnosticism. Spinoza rejects every conception of this kind in the first statement; which means that when we know the Attribute, we so far (really, though imperfectly) know the essential nature of the 'Substance'. This leads to the second statement, which means simply what it says: our knowledge of God is partial; but though it is partial, it is not false; it contains some truth and anticipates the full truth just as the early morning twilight contains and anticipates the full light of the noon-day sun. There are degrees of knowledge, and the contents of our partial but true knowledge of God Spinoza calls the 'Attributes' of God. Hence the more we really know of any Attribute of God, the more we really know of the Essence of God.

There are only two Attributes of God of which we have any knowledge at all; these are 'Extension' and 'Thought', which reveal themselves in our experience as what we call 'Matter' and 'Mind'. This brings us to Spinoza's profoundest conception, implied in the words 'absolutely infinite' (def. iv). The Being of God is not to be confined within the limits of human experience. Our knowledge of God is real, we have valid lines of approach; but not only is the Reality infinitely beyond us on these lines—there are also an infinite number of other lines of approach to which we have no access. There are infinite worlds of experience, different from ours, but capable of revealing the Essence of God to beings fitted to approach Him along those lines. We are restricted to two such lines—namely those which

we call the world of Mind or Spirit, and the world of Matter. Each of these is infinite; but God is absolutely infinite, i.e., he is the Infinite of Infinites. We shall return to the further explanation of this conception, after explaining Spinoza's conception of Eternity.

Spinoza's conception of Eternity receives only its most formal and abstract statement in the definition (viii), from which it follows that nothing is eternal in its own right except God or the Universe itself, whose 'essence' and 'existence' are one. Accordingly it is stated in the twenty-fourth proposition of Part I that the essence of things produced by God (*rerum a Deo productarum*), that is to say, of all *finite* things, does not involve existence. Their 'essence' follows from and illustrates general laws of Nature. The question is, in reference to God, how much *more* than the unity of 'essence' and 'existence' does Spinoza mean by 'eternity ? We have a clue in an expression used incidentally in a letter to his friend Meyer: *Eternity, that is, the infinite enjoyment of existence.* This reminds us of the definition given by Boethius, which ruled the thought of the Middle Ages: 'Eternity is the complete and perfect possession of unlimited life all at once (*interminabilis vitae tota simul et perfecta possessio*).' We may say that this statement might have been made by Spinoza. There is no reasonable doubt that he conceived Absolute Reality, Substance, or God, as essentially dynamic and as containing dynamically 'whatever expresses reality'. God's power is identical with God's essence in action. From God's supreme power, or infinite nature, an infinite number of things, that is, all things, have necessarily flowed forth in an infinite

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number of ways. This word 'necessity', constantly used by Spinoza of Deity, must be emptied of every suggestion of *compulsion*. All admit (he observes) that God by the 'necessity' of his nature understands himself; in the same way it follows 'by the same necessity' that he performs infinite acts in infinite ways.[1] This manner of treating the question, in Spinoza's opinion, attributes to God an omnipotence far more perfect than the omnipotence which is ordinarily believed in, and which (as he conceived it) implies that God understands an infinite number of creatable things but actually creates nothing except what he has decided, by some arbitrary exercise of will, to create.

The dynamic conception which is affirmed of the Divine Nature is affirmed in like manner of the Attributes. As regards Matter, the first step in breaking up the unity of God's infinite Extension into multiplicity (a multiplicity still retained within the unity) is its manifestation as motion and rest—in other words, *as physical energy*. As regards Thought, an 'idea' is defined as an *activity* of the mind. In proportion as a thinking being is conceived as thinking more thoughts, so is it conceived as containing more reality or perfection. And above all, 'God's power of thinking is equal to his realized power of action.' 'To those who ask', says Spinoza, in the *Appendix* to Part I, 'why God did not so create all men that they should be governed only by Reason, I answer: because matter was not lacking to him for the creation of every degree of perfection from the highest to the lowest; or, more strictly, because the

[1] See especially the Notes (*Scholia*) to Part I, prop. xvii, and Part II, prop. iii.

laws of his nature are so vast as to suffice for the production of everything conceivable by an infinite intelligence'.

There can be no doubt, we repeat, that Spinoza steadily endeavours to think of God dynamically as positively including all things and in this sense 'eternal'. This is really the meaning of his doctrine. But at the same time he constantly uses expressions which have led many interpreters to assume that his God is an infinite abyss of negatives, an abstraction which in purporting to be the secret of reality is in fact attenuated into the indescribable. He always expresses the relation of real dependence or real causality by the word 'follow from' (*sequi*, *consequi*), and almost always adds, 'as from the definition of a triangle follows the equality of the sum of its angles to two right angles.' What precisely this meant in Spinoza's own mind is a question on which we cannot here enter. What it has suggested to others is that the idea of active operation is to be identified with the mathematical relation of 'ground and consequent', which is assumed to be 'timeless'; that the dependence of the world upon God is a mathematical consequence and in this sense 'eternal'; and that the system is a 'mathematical pantheism'.

Here Spinoza's 'geometrical method' has become a *geometrical metaphor* which is far from satisfactory. It might be urged that the metaphor itself is a failure, since nothing at all 'follows' from the essence of any geometrical figure except by reference to Space, in other words, to experience. From the mere definition of a 'circle' it is impossible to deduce any of its properties save by 'construction', drawing radii, chords,

which intersect, and so forth. In Spinoza's favourite illustration, the result is only proved by a simple construction on the triangle; and then it only 'follows' if Euclid's famous axiom of parallels, which is not self-evident, is taken for granted.

Even more serious, for the interpretation of Spinoza, is a further suggestion of the metaphor. So far as Infinite Being is comparable to a geometrical figure, and the world comparable to consequences seen to follow from its nature on construction, we arrive at the original figure again only by wiping out the construction. Then is the Infinite reached by thinking away the varieties of the finite? Is the reality of the finite inconsistent with the reality of the Infinite? Even apart from the geometrical metaphor, Spinoza uses expressions (as in the proof of propositions V of Part I, and X of Part II) which suggest this negative conclusion. Nevertheless, as we have seen, such a conclusion gives no adequate representation of his meaning.

The criticism of 'anthropomorphism' in the *Appendix* to Part I, and elsewhere, must be read in the light of the foregoing explanations. Is the Infinite Being conscious? Not in the manner of men: for human consciousness is a state of the finite mind, corresponding in the Attribute of Thought to a state of the body in the Attribute of Extension. None the less, God is a thinking being, thinking infinitely in infinite ways. Can we attribute to God 'intellect' or 'will'? Not the 'intellect' which is compelled to proceed by the piecing together of parts and the inferring of the unknown from the known; and not the 'will' which involves a choice between alternatives given or pre-

sented to it. But God is 'free' in that he acts solely from his own nature and is not constrained by anything.

iv. *The Attributes of God.*

We have already seen the outline of Spinoza's conception of the Attributes as the forms under which Substance presents itself to our intellect. They are what our intellect discovers in the Substance, the infinite Reality revealed to it in experience. God, as infinite, possesses infinite Attributes other than those which are discoverable by the human intellect, namely Extension and Thought. We have now to see how these latter stand in relation to one another.

By Extension Descartes meant bare geometrical space of three dimensions. Spinoza declares that from Extension, thus conceived, that is, as a quiescent mass, it is absolutely impossible to prove the existence of bodies involving motion and rest; 'matter', he says, is badly defined by Descartes as Extension. It must be defined by an Attribute which expresses eternal and infinite essence.[1] When we speak of lengths and figures of things we are not dealing with reality except in the manner of the Imagination. We are making divisions and separations. There are no separate lengths and figures, but only the infinite Extension which is God under a certain Attribute. It is indivisible into lengths. It reflects the activity of God, and therefore reveals itself in 'modes' of motion and rest. This subject is dealt with briefly by Spinoza in a digression following the thirteenth proposition of Part II. His purpose,

[1] See the *Correspondence of Spinoza*, letters lxxxi and lxxxiii (to von Tschirnhaus); Professor Wolf's edition, pp. 363, 365.

however, was not to analyse the nature of matter. His purpose (as stated in the short Preface to Part II) was to explain those consequences of the nature of God 'which are able to lead us, as it were by the hand, to the knowledge of the human mind and its highest blessedness'.

In speaking of the Attribute of Thought, Spinoza uses this latter word with a wide range of meaning like that given to it by Descartes: but his treatment of it differs entirely from that of Descartes, because for Spinoza the doctrine of degrees of knowledge (as already explained) is fundamental. Further explanation will be given when we come to speak of his doctrine of human nature.

Vital to Spinoza's conception of the world is his theory of the *parallelism of the Attributes*. 'Parallelism' is a convenient term, though inadequate, for it suggests two separate things going on side by side: to suppose this would be for Spinoza an illusion of the Imagination. Parallelism, for Spinoza, means that 'the order and connexion of ideas is the same as the order and connexion of things'. 'Substance thinking and Substance extended are one and the same substance, apprehended now through one Attribute, now through the other.' 'A mode of Extension and the Idea of that mode are one and the same thing, though expressed in two ways; . . . for instance, a circle existing in Nature, and the idea of a circle existing, which is also in God, are one and the same thing displayed through different attributes; thus, whether we conceive Nature under the Attribute of Extension or under the Attribute of Thought, *or under any other Attribute*, we shall find the same order, or one and the same chain of causes.' The

general conclusion is that whatever follows from the infinite nature of God in the world of Extension follows without exception in the same order and connexion from the infinite nature of God in the world of Thought or that of any other attribute. This central doctrine is given in the seventh proposition of Part II, where Spinoza professes to derive it from an 'axiom'. There is, however, no real proof; it is one of his fundamental assumptions.

Before taking our next step we must recall the most important result of Spinoza's doctrine of Imagination. Whenever we think of things as separate or disconnected units (whatever the units may be) we are subject to Imagination; we are moving away from Reality to the unreal. We have just seen how this applies to the 'two' Attributes. They are at bottom one. And the meaning of their unity is that God may be known through any one Attribute alone—say that of Extension, which as we have seen is not merely geometrical space—as completely and adequately as through any other. It all depends on the adequacy of our knowledge of the Attribute in question.

Now—according to what we felt justified in describing as Spinoza's profoundest thought—there are infinite attributes which the ultimate Reality possesses in virtue of its infinite perfection, beyond the 'two' apprehended by our reason. The doctrine of infinite attributes has remarkably interesting results. Not only the nature of God, but every single thing of ordinary experience, has *infinite aspects of its existence never revealed to our embodied apprehension*, but none the less essential to the reality of the thing. They are

never revealed to our embodied intelligence, simply because it is finite and it is embodied; it perceives only through the body, and the body can perceive only modes of Extension.[1]

Again, since the infinite power of Thought, which is part of the essence of God, contains in itself Ideas of the whole of Nature, it follows that God has Ideas of all these other (to us) unknown Attributes and their modifications. From this again, on Spinoza's principles, it follows that we have *no right to assume that human minds are the only finite minds in Nature*. To see how this follows, we must concentrate on what we have called the 'parallelism' of modes of Extension and modes of Thought. Any material object, for example, is a 'finite mode' of Extension. But it is also a mode of Thought in God, or as Spinoza says, there must be an 'Idea of it' in God, or an Idea 'of which it is the object'. Along with every 'mode' or modification of Extension (or any other Attribute of God) there must always be a corresponding modification of the Attribute of Thought. Every 'mode' exists under both the known Attributes (not to mention the unknown ones). In this sense, not only living bodies but all things are 'animated' (*omnia animata*). Spinoza thus explains this result in his 'Note' to the thirteenth proposition of Part II:

'The propositions which we have advanced hitherto have been entirely general, applying not more to men than to other individual things, all of which, though in different degrees, are animated. For there is necessarily in God an Idea of

[1] With regard to these points, see, in particular, *The Correspondence of Spinoza*, letters xxxii, lxiv, lxvi (Prof. Wolf's edition, pp. 212, 307, 310, 462).

everything of which he is the cause, in the same way as there is in him an Idea of the human body. . . . On the other hand, Ideas, like objects, differ one from another, one being more excellent than another and containing more reality, just as the object of one Idea is more excellent than the object of another Idea and contains more reality.'

The human body is a special case coming under this generalization. 'The first element which constitutes the actual being of the human mind is the Idea of some particular thing actually existing.' The 'particular thing' is the corresponding body; and he proceeds: 'The object of the Idea constituting the human mind is the body.' We notice again Spinoza's use of the expressions 'Idea of the body' and '*object* of the Idea'. By such expressions he does not mean what most modern philosophers mean by them; he means the mode of Thought corresponding to that particular mode of Extension called the human body—the essence of the two being identical. And since there are infinite Attributes inaccessible to our human perception, though comprehended in God's infinite power of thinking, it follows that each modification of each of these (to us) unknown Attributes will be attended by its corresponding Idea in God under the Attribute of Thought, that is to say, *by its corresponding finite mind.*

v. *The Human Mind.*

We have seen that on Spinoza's principles the actual existence of an individual human mind depends on, and fundamentally consists in, the presence in God of an Idea corresponding to the particular mode of Extension in which that individual mind is embodied (see

especially propositions xi to xiv in Part II). The superiority of the human mind over the 'minds'—if such they can be called—of other things, consists, firstly, in the *superior organization* of the corresponding body, and, secondly, in the indefinitely great *capacity of adequate thinking* which results from that organization. The more readily the body responds and reacts to stimuli of every kind, the more easily will the corresponding mind receive and retain ideas of every kind. The Idea constituting the mind, as it is apprehended in our experience, is therefore extremely complex. The singular number, 'the Idea', has been used only to emphasize its fundamental unity. It consists of numerous groups and trains of ideas. Moreover, regarded as *knowledge of* the body, it is very inadequate knowledge. Nevertheless every idea or thought corresponds to a certain condition of the body, and varies with the object which provokes this bodily condition.

From this it follows that the original perceptions of the mind correspond primarily to the effects produced on its body by other things, and do not indicate the true nature of those things as they are in reality or 'in God'. Spinoza would say that the idea which I have of the table informs me rather of the state of my body than of the table. In other words the table reveals itself to me in so far as it induces in me certain processes of body (we should say of brain) which are identical with what we call the thought of the table. Such imperfect apprehension of the world around him, as any one of us has, is primarily a consciousness of that part of the world which is called his body, and of any other parts only so far as they are in direct or

indirect contact with this. So far, it might appear that the mind consists only of more or less inadequate ideas of other things. But it must never be forgotten that, for Spinoza, to have an 'idea of a thing' involves having an 'idea of that idea'. The mind's knowledge 'of the body' involves also the mind's knowledge of itself. And as the mind's knowledge of its body becomes more adequate, comprehending its place in the world, its value in the scheme of things, its power of action, so the mind may learn those capacities of its own which make this knowledge possible: thus becoming endowed not only with a genuinely scientific knowledge of the outer world but with a profound self-knowledge which brings sanity of moral purpose and inward peace.

It is impossible to enter into the details of Spinoza's psychology within our present limits; but the leading principles used by him must be clearly grasped.

(i) Individuality is defined in a law which Spinoza assumes to be universal in Nature, though he does not attempt to show how it is involved in any of the Attributes: inherent in the essence of each existing thing, there is an endeavour (*conatus*) to persist in its existence and even to increase the plenitude of its own being. The 'proof' which is offered is merely the negative consideration that a particular thing, being a determinate mode of the Attributes, cannot cease to exist without some external cause. This does not give what Spinoza requires. The *conatus* is not merely a kind of *inertia*; it is active, progressive, we might even say creative: it is the secret spring of the rational and emotional life at every stage.

Spinoza's use of the *conatus*, both in his psychological and in his ethical doctrine, depends on what seems at first sight a violent paradox: the identification of will and intelligence. We saw that Descartes treated the will as the faculty of judging or giving assent to combinations of ideas, and distinguished it from the purely intellectual faculties by which the ideas are apprehended. Spinoza insists that the acts of apprehension and judgement cannot be separated from one another: 'in the mind there is no volition, that is, no affirmation or negation, which is not immediately involved in the idea it apprehends;' 'intellect and will are one and the same.' But the paradox largely disappears when we understand what this means for Spinoza. It means that knowing is an action, judgement an exercise of will; and to that extent the recognition of an object—the object of an emotion, for example—is itself something practical. All alike are but different forms of the *conatus* which is one with man's very being.

(ii) Spinoza's treatment of the emotions, in Parts III and IV of his 'Ethics', is generally admitted to have a value altogether beyond its merely historical interest. None the less it places the emphasis too exclusively on the intellectual factor involved in emotion; the *knowledge* of the *object* arousing it is treated as the essential factor in its causation. To bring his account into line with recent psychology it would have to be revised so as to show the importance of the connexion of emotion with the subjective factor of *instinct*. Spinoza defines love as 'pleasure accompanied by the idea of an external cause'. To define it as the impulse to unite oneself with the beloved object, would be, in Spinoza's opinion,

to define it by a secondary symptom rather than intrinsically or essentially. Yet the reverse is the truth. Spinoza is defining it by a secondary symptom. He thinks the lover's *recognition* of his pleasure as caused *by the object* arouses the emotion of love. On the contrary: the presence of the object arouses an instinctive reaction on the part of the lover, and this reaction makes him recognize the object as lovable. Nevertheless, Spinoza uniformly lays the emphasis on the objective factor, which he assumes to be fundamental.

The primary emotions are 'pleasure' and 'pain', the usual but rather inadequate renderings of Spinoza's *laetitia* and *tristitia*: defined as the feeling in which the mind passes in the one case to greater, in the other to less, 'perfection'. By 'perfection' is here meant reality or scope of being; there is a felt enhancement, or abatement, of bodily and mental power; that is to say, of the instinct of self-conservation, the *conatus*. From 'pleasure' and 'pain', so understood, springs 'desire'—the conscious endeavour to preserve the increase or arrest the decrease of bodily and mental power. From these three primitive emotions Spinoza traces the origin of more than thirty derivative emotions, many of them (as hope and fear) arising in antithetic pairs. They all involve *both the body and the mind*, and would be impossible apart from bodily feelings and the effects on the body of external causes. The ideas involved are 'inadequate ideas' belonging to the realm of Imagination. In other words, they are passive affections imposed upon us. They constitute our 'servitude'. From the review of them, 'it is plain', he says, 'that we are in many ways driven about by

external causes, and that like waves of the sea stirred by contrary winds, we sway hither and thither, not knowing to what our fate will bring us.'

(iii) As we pass from inadequate ideas of Imagination to adequate ideas of the second Degree of Knowledge, the mind's own rational nature opens up—its own self-activity, unchecked by foreign interference, is revealed, and receives free play. A new realm of the emotional life then emerges, where the central power is that of Fortitude (*fortitudo*), strength, firmness, or steadfastness of character, acting from the inner law of the mind alone, undisturbed by the passive affections. Penetrating as it does and occupying the whole field of character, it assumes various aspects; chiefly two, according as it expresses itself in action purely personal or in action relative to others. These are Courage (*animositas*), 'the desire whereby every man strives to preserve his own being in accordance solely with the dictates of reason;' and Highmindedness (*generositas*), 'the desire whereby every man endeavours, solely under the dictates of reason, to aid other men and unite them to himself in friendship.' The ways in which Spinoza believed that these impulses work are set forth in the later propositions of Part IV: especially in those relating to 'the free man'.

Our advance to the third Degree of Knowledge opens up to us a higher and all-inclusive spring of action, called by Spinoza 'the Intellectual Love of God'. This will be explained below.

vi. *Morality.*

Spinoza teaches a morality which is in every respect the opposite of asceticism. He admits no real *self-*

sacrifice into morality at all; for him there is no dead self by which we may rise, no losing of life that we may find it. Evil is nothing positive or in itself real; it is defect of good. On the other hand, his morality is not egoistic in any intelligent meaning of that word. The range of this morality may be illustrated from a passage in proposition xlvi of Part IV: 'He who would return hatred for injury lives a miserable life indeed. But him who sets himself to lay siege to hatred with love, you cannot deny to be a safe and happy warrior. With equal ease he faces a single foe or a host, and asks no aid from fortune. And those whom he conquers yield to him with joy, not as beaten but with augmented strength.'

The fundamental principle of virtue is the *conatus* of the individual to self-conservation. It appears to be a principle of self-seeking or self-assertion; but under the guidance of reason it may become the love of man and the love of God, and finds blessedness not in the reward of virtue but in virtue itself. The solution of this problem consists in seeing that if man is purely self-seeking and self-asserting, if he can will nothing but his own being, his own real being is not his exclusive personal individuality. Only when in bondage to Imagination can we suppose it to be so. The good of other beings is involved in his own. And ideally, if he loves God it is because he cannot find his supreme good anywhere but in God.

Every human good which is really good—or, as Spinoza would say, the desire of which is based on adequate ideas—is essentially shareable, disinterested, and concrete. In the first place, it is essentially a common good, essentially *shareable*: 'the highest good of those who follow virtue is common to all, and

therefore all can equally rejoice therein;' 'the good which every man who follows after virtue desires for himself he will also desire for other men, and so much the more, in proportion as he has a greater knowledge of God' (see especially propositions xxxiv to xxxvii of Part IV). Elsewhere Spinoza declares that the man who is guided by reason is more free in a State, where he lives under a general system of law, than in solitude, where he is independent. The 'proof' rests on the assumption that the general system of law in a rational State will be for the common good: 'therefore the free man, in order to possess greater freedom, desires to possess the general rights of citizenship'. The laws of such a State will be based on the fullest possible understanding, not merely on feelings of compassion or vindictiveness. In the second place, it is essentially a *disinterested* good. Spinoza speaks with a note of indignant scorn of 'those who expect to be decorated by God with high rewards for their virtue and their best actions as though the doing of these were the direst slavery—as though virtue and the service of God were not in itself happiness and perfect freedom'. It claims no wages as the reward of well-doing, least of all does it keep a moral ledger with a debit and credit account to be evenly balanced. 'Even if we did not know', says Spinoza, 'that our mind is eternal, we should still consider as of primary importance genuine piety and religion, and generally all those things which in Part IV we showed to be attributable to Courage and High-mindedness.' Even if every part of us perishes at death, these things remain the supreme interests and supreme values in life. To act otherwise, he adds, is 'no less

absurd than if a man, because he does not believe that by wholesome food he can sustain his body for ever, should wish to cram himself with poisons and deadly fare; or if, because he believes that his mind is not eternal or immortal, he should prefer to be out of his mind altogether and to live without the use of reason'. In the third place, it is essentially a *concrete* good, not self-absorption or rapt contemplation. 'We can never arrive', he says, 'at doing without all external things for the preservation of our being or living, so as to have no relations with things which are outside ourselves. And if we consider our mind, we see that our intellect would be more imperfect if mind were alone and could understand nothing beyond itself. Of things outside ourselves, none can be discerned more excellent than those which are in entire agreement with our nature.' He then points out that ourselves and our fellow-creatures, however far we may fall short of it, are fitted by Nature and reason for such agreement; and he proceeds, 'nothing more excellent for preserving their being can be wished for by men, than that all should so agree in everything, that the minds and bodies of all should form as it were one single mind and one single body, and that all should with one consent seek what is useful to all; hence those who are ruled by reason, that is, who seek what is useful to them in accordance with reason, desire for themselves nothing which they do not also desire for the rest of mankind: and consequently they are just, faithful, and honourable in their conduct.'

Finally we have to remember that the doctrine apparently taught in the famous Appendix to Part I (that everything as it exists in its own place is equally

perfect and equally necessary) is not Spinoza's last word. For him, in the end, there are always degrees of perfection, and Nature is—to employ the too-familiar metaphor—a *hierarchy*. We can best understand the nature of God's relation to the world by considering, not stones and plants, but 'the most reasonable and perfect creatures'. The Eternal Wisdom of God has manifested itself in all things and above all in the human mind. And when one of Spinoza's correspondents criticized his doctrine as meaning that the wicked with their evil impulses serve God and do his will equally with the good, he replied as follows:

'The wicked, it is true, do in their fashion the will of God, but they are not on that account in any way comparable to the good. The more perfection a thing has, the more does it participate in Deity. Since then the good have incomparably more perfection than the bad, their virtue cannot be likened to the virtue of the wicked, inasmuch as the wicked lack the love of God, which proceeds from the knowledge of God, and by reason of which alone we are called servants of God. The wicked, knowing not God, are but as instruments in the hands of a workman, serving unconsciously, and perishing in the using: the good, on the other hand, serve consciously, and in serving become more perfect.'[1]

vii. '*Amor intellectualis Dei*.'

The lofty ethical writing illustrated in the passages which have been quoted is characteristic of Spinoza: but for that very reason we have to press the question, in what sense are these ideals *real possibilities* for us? In what sense are we *free* even to begin to strive after their attainment?

[1] See, in particular, *The Correspondence of Spinoza*, letters xix, xxi, lxxiii, pages 151, 178, 344 in Professor Wolf's edition.

Our individual personalities are nothing but 'finite modes' of the Attribute of thought, so far as it exists modified in a definite way, and is only a part of the whole universe, connected with and depending upon every other part; and all alike are mutually determined to exist and act as in fact they do. Every part of the universe—in other words, every individual thing, animate or inanimate—is controlled by the nature of the infinite whole in infinite ways and is compelled to suffer infinite changes (see letter xxxii, *op. cit.*, p. 211). The movements of our bodies—and therefore equally those of our minds—are no more 'free' than the movement of a stone thrown through the air. The 'freedom' which (according to Spinoza) men regard as the glory of human nature, consists solely in this, that they are conscious of their actions and unconscious of the causes by which these actions are determined (see the 'note' to proposition iii of Part III). It is an illusion to suppose that when we act we act in any way from the free decision of the mind. This is in fact an immediate consequence of the doctrine of parallelism. It appears then that the edge of the criticism quoted above (see p. 80) was not entirely turned by Spinoza's reply in letter xix.

On the other hand he affirms, with the utmost emphasis, the real possibility of freedom as an ideal to be attained, and indeed the supreme ideal of human life. The question is, then, how this sublime ideal is to be linked up with the actual human mind and body whose actions are determined as an effect is by the totality of its causes.

There is an inner tendency or urge, the *conatus*, which

is an expression of the individual's own nature. The more this inward factor predominates, the more the individual is, in this sense, free. And this ideal, this diversion of the energy of the *conatus* from illusion to reality, is progressively attained by the attainment of more and more adequate Ideas, until through the second Degree of Knowledge we have passed to the third and attained to the 'Intellectual Love of God'. In the second Degree our knowledge is all occupied with the common properties proceeding from the 'infinite mode of motion and rest' which unifies them all. As we pass to the third Degree, we comprehend things not merely by moving from stage to stage of this unification but by a vision of them as necessary parts of a single system each integral to the whole.

This vision of the universe, as in all its parts a system of divine necessity, is the *scientia intuitiva* in which knowledge culminates; and this vision creates the Intellectual Love of God, the supreme emotion which subdues all lower desires because it is itself the perfect satisfaction of the mind (*vera mentis acquiescentia*). Spinoza's whole teaching about human nature is pervaded by the conviction that our happiness or unhappiness depends solely on the quality of the object on which our love is fixed: and love towards an eternal object feeds the mind with a joy which is pure with no tinge of sadness or regret.

It is characteristic of Spinoza that this should be expressed in terms of the intellect. Brought into contact with the Idea of God, all ideas become adequate and true by the elimination of the false element in them. The Idea of God is, as it were, the touchstone which

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distinguishes the gold from the dross. It enables us to detect the higher spiritual element in the natural passions, and to sever the elements belonging to that pure love of self which is the love of perfection from the elements belonging to that impure love of our own exclusive individuality which is the love of evil. In this light we must regard Spinoza's formal definition of Religion: 'Whatever we desire and do, of which we are the cause, in so far as we have the Idea of God or know God, I set down the Religion' (*Quicquid cupimus et agimus cuius causa sumus, quatenus Dei habemus Ideam sive quatenus Deum cognoscimus, ad Religionem refero*: see note 1 to proposition xxxvii of Part IV). This describes the religious life, and is in the spirit of the words, 'who sweeps a room as for Thy laws, makes that and the action fine.'

Spinoza's doctrine of the vision which is the Intellectual Love of God has been called 'mysticism'. On this, Professor S. Alexander has made some admirably just observations:

> 'The dangerous form of mysticism is that in which the worshipper is lost in the adoration of God, and God becomes an infinite abyss of negatives, an abstraction which in purporting to be the secret of reality is in fact attenuated into the indescribable. Spinoza's conception of God does not altogether escape this reproach, and accordingly in one of its aspects the intellectual love of God does not always leave room for the claim of the healthy individual soul, but tends towards the utter absorption of the individual in God. It asks for no answering love from God. It is but a portion of the infinite love with which God loves himself. It is not only unselfish, being intensified with the imagination that others are joined with us in this love, but it is selfless. This was the very feature which recommended Spinoza to the mind of Goethe. But it is the drawback to which the religion of Pantheism is

always liable, and which Spinoza has not completely avoided. The healthy religious mind shares Spinoza's mysticism to the point of its feeling of our oneness with God; but it asks for the fathering response, and holds that God's need of us is no less than our need of him. It saves the individual from absorption by securing his independent entry into the relationship of dependence upon God, and seeks in God fulfilment of the human being and not absorption.'[1]

In his account of this ultimate experience Spinoza speaks of the eternity of the mind of man—the 'eternal part of us' which is even a matter of experience (*sentimus experimurque nos aeternos esse*: see proposition xxiii of Part V). Students of Spinoza are now agreed that personal immortality or survival of bodily death is not possible under his fundamental assumptions: imagination and memory are wholly dependent on the body and perish with it. But the propositions and arguments of Part V do not admit of the conclusion that all perishes at death. On the contrary, the man of adequate ideas can say with Horace, *non omnis moriar*. In a manner, everything survives because in the infinite power of Nature it 'undergoes infinite changes'; but Spinoza means more than this in the case of the mind. How much more, is a topic upon which there has been difference of opinion among competent students of Spinoza. Professor A. E. Taylor, in an essay of permanent value contributed to the philosophical review *Mind*[2] has argued with great force that, on Spinoza's principles, an adequate Idea, when once thought, takes its place, in the form in which it is thought, as a permanent addition to the stock of scientific knowledge in the world. An adequate Idea has

[1] *Op. cit.*, pp. 67, 68. [2] New Series, vol. v (1896).

a twofold superiority to every other factor in the soul's life: 'In formulating it, he who first does so is re-thinking part of the eternal content of the divine Intellect in its true form, so that the adequate Idea properly speaking has no beginning and will have no end; he is also thinking something which all subsequent human science must re-think after him: hence the adequate Idea, because adequate and eternal, is also, so far as it appears in time at all, permanent and ever-enduring.'

In this short survey of the work of a very great thinker, we have dwelt only on the leading features of his system. It is not part of the plan of this book to enter on any discussion of those details in it whose interpretation is difficult and debatable. It has been necessary, however, to make clear the double tendency in Spinoza's thought. The evident meaning and intention of his system is to defend a positive and affirmative conception of the Infinite as an all-comprehending Life; but this positive and affirmative conception is crossed by another—certainly connected with Spinoza's favourite geometrical metaphors—according to which the reality of the Infinite is inconsistent with the reality of the finite, and the finite disappears in the Infinite.

What we have just said may be illustrated by the unsatisfactory position in which human nature is left in Spinoza's system. Strictly speaking, he leaves no room for human nature in the sense of a *real kind* of being, of which for example Peter or Paul is a good specimen and Nero a very bad one. To speak of 'human nature' is either to use words without a meaning, or it is to mean merely the aggregate of so many millions of

'finite modes' called human minds, all of which are equally necessary consequences of 'the eternal and infinite essence of God'. On the other hand, we have found Spinoza assigning to every individual an inner urge to the preservation and expansion of its own being; affirming that 'the good' and 'the bad' are related to God in opposite ways; and introducing a hierarchical conception of experience as a graded system of manifestations of the Infinite.

We have more than once spoken of Spinoza's 'system'. But it must always be remembered that he did not give to the world a complete system of philosophy. That was not his purpose. His purpose was to write a treatise on the good for man and how to obtain it. To discuss any difficulties in his thought on the assumption that he intended a complete system is beside the mark. His own words, at the close of Part V of the 'Ethics', are well worth quoting. After saying that he has completed all he wished to set forth concerning the mind's power over the emotions and the mind's freedom, he continues: 'If the way which I have pointed out as leading to this result seems very hard, it can nevertheless be found. Needs must it be hard, since it is so seldom discovered. If salvation were ready to our hand, and could without great labour be discovered, how could it be by almost all men neglected? But all things excellent (*praeclara*) are as difficult as they are rare.'

IV

LEIBNIZ

i. *Life and Personality.*

When we survey the work of Spinoza in the light of its spirit and intention, we see a sublime doctrine of the unity of all things, capable of a lofty ethical and religious interpretation; and yet in effect it is a dogmatic monism. In other words, it is based on the sheer assumption that only one Being really exists, whose reality is such that all other beings are only dependent 'modes' or modifications of it. The main question which the philosophy of Spinoza forced on the attention of contemporary thinkers, who could understand it, was whether monism in the sense defined is an assumption which we are compelled to make. We now come to the work of the last of the three great representatives of speculative thought in the century: a thinker who starts with a negative answer to the question which we have just stated.

Gottfried Wilhelm Leibniz was born at Leipzig in July 1646. Spinoza was then a boy of thirteen and (as was supposed) an unusually promising pupil of the Senior Rabbi of the Amsterdam Synagogue. Descartes, aged fifty, was in Holland, elaborating his system of Nature; and when he died Leibniz was not four years old. Friedrich Leibniz, his father, a jurist, was Professor of Moral Philosophy in Leipzig from 1640 to his death in 1652; from this date young Leibniz seems to have been for the most part his own teacher. He mastered Latin at an early age, and his extraordinary

intellectual genius enabled him to make such use of his father's library that at twelve years of age we find him reading the works of several medieval thinkers, and making notes for a reform of logical doctrine. An eager study of the Greek thinkers followed. In a letter written many years afterwards, he says: 'I began to think (*méditer*) when I was very young; and before I was fifteen I used to go for long walks by myself in the woods, comparing and contrasting (*pour prendre parti entre*) the principles of Aristotle and those of Democritus.'

At the age of fifteen he entered the university of Leipzig as a student of Law; and his thesis *De Principio Individui*, written for the first Degree, is seen to be characteristic when we regard it in the light of his subsequent thinking. He took the Degree of Doctor of Laws in November 1666 at Altdorf, the university town of the free city of Nuremberg. He was already known as the author of several remarkable essays, including one *De Arte Combinatoria*, the first expression of his life-long project of a reformed symbolism and method in Logic. At Altdorf he was offered a professor's chair; but he declined, having, as he said, 'very different things in view'. The following year (1667) he entered the political service of the Elector of Mainz. From this time onwards his life was to a great extent that of a man of affairs, chiefly at courts, where he was employed in many ways diplomatic and other. At that time both Holland and Germany were threatened by the ambitious and aggressive policy of Louis XIV of France; and in 1672 Leibniz was sent to Paris, charged in effect with a secret commission (as was afterwards

ascertained) to divert the danger from Germany by persuading Louis to attempt the conquest of Egypt from the Turks. One of the French Ministers observed that 'Holy Wars' had gone out of fashion; and nothing came of the scheme.

No political schemes, however, could make Leibniz lose sight of his philosophical and scientific interests; and it was as a centre of literature and science that Paris chiefly attracted him. It was here that he conversed with Arnauld and Malebranche; during a short visit to London early in 1673 he made the personal acquaintance of Oldenburg (first Secretary of the Royal Society) and Boyle; and on his return to Paris devoted himself to the study of higher geometry under the guidance of Christian Huygens, thus beginning the series of investigations which led to his discovery of the differential and integral calculus.

While he was still in Paris, Leibniz entered the service of the learned Catholic Duke, John Frederick of Brunswick, and in 1676 removed to Hanover at the Duke's request, travelling thither by way of London and Amsterdam. At Amsterdam he saw and conversed with Spinoza, and carried away with him some extracts from the then unpublished *Ethica*. He corresponded on some of Spinoza's doctrines with two of the latter's friends, Tchirnhaus (who introduced the two philosophers) and afterwards with Schuller. Here it must be observed that his indebtedness to Spinoza was greater than at any time he was willing to admit; and his references to Spinoza became more distinctly hostile when Spinoza became an object of general obloquy. The whole subject of his relation to Spinoza has been

investigated in a monograph of permanent value published at Berlin in 1890 by Professor Ludwig Stein under the title *Leibniz und Spinoza*.

For the next forty years—in other words, for the remainder of his life—Leibniz was in the service of the Brunswick family, and his head-quarters were at Hanover, where he had charge of the ducal Library. He thus passed into a political atmosphere created by the dynastic aims of a typical German principality. It is clear, however, that, in addition to his own scientific and philosophical studies, his interests were in no merely local ambitions, but in the development of European civilization, and the foundation of scientific Societies: for example, his proposals for the institution of an Academy in Berlin took effect in 1700, he being its first President. Nevertheless, the multiplicity of his engagements and literary enterprises, and the numerous journeys which he undertook—especially in connexion with the history of the Brunswick family, which he had been commissioned to write—though they were full of attraction for a man of his many-sided interests, prevented him from accomplishing any connected exposition of his philosophy as a whole. His thoughts are set out for the most part in short occasional papers, or in letters, and generally in French. They show that he was gradually developing, defining, and systematizing his ideas.

It is characteristic of Leibniz that he should have devoted much time and thought to a scheme for the reunion of the Catholic and Protestant Churches. He was encouraged in this by the moderate spirit of the theologians whom he met in Hanover. Discussions

proceeded there for several years, during which the Catholic point of view was maintained with energy and skill by Royas de Spinola, who used as a doctrinal basis the *Exposition de la Foi*, written by Bossuet in 1676. Spinola really desired a working agreement on which reunion might be based; and Leibniz, who took a hopeful view of the progress of the conversations, composed his *Systema Theologicum* (1686, not published until 1819), in which he tried to find common ground for Catholics and Protestants in the details of their creeds. Soon afterwards, however, his correspondence with Bossuet convinced him that the religious difficulties were too great. Another scheme of Church union in which Leibniz was engaged during the years 1697–1706—between the Reformed or Calvinist and Lutheran Churches—met with no better success. A careful account of all these discussions, with references to contemporary documents, is given by Dr. G. J. Jordan in *The Reunion of the Churches: a Study of G. W. Leibnitz and his great Attempt* (London, 1927). During this time Leibniz was developing his philosophical ideas in numerous letters to friends and in various published papers, among which we may mention, in particular, the *Meditationes de Cognitione* (1684), in which he defended the 'ontological' argument for the existence of God essentially in the form in which Descartes had stated it (God is the most perfect Being, and existence is a perfection); *De Primae Philosophiae Emendatione* (1694), in which he urges that active force, proceeding from within, is inherent in all bodies; *Système nouveau de la Nature* (1695), in which the doctrine of Monads is clearly stated; and above all

Nouveaux Essais sur l'entendement humain (1703, not published until 1765), where he expounds his own views on the basis of a criticism, chapter by chapter, of Locke's *Essay concerning Human Understanding*, a work of which he had a high opinion.

A few years later, Leibniz established a personal connexion with literary and scientific life in Berlin through his friendship with the Princess Sophie Charlotte of Brandenburg, afterwards Queen of Prussia, a talented woman who gathered round her a circle of the most eminent *savants* of the time. The philosophical and theological doubts expressed by Pierre Bayle in his *Dictionnaire* and other works, concerning which Leibniz had often conversed with Queen Sophie Charlotte, led to the publication, in 1700, of his *Essais de Théodicée sur la bonté de Dieu, la liberté de l'homme, et l'origine du mal*, directed against Bayle's doctrine that the teachings of Faith are entirely incompatible with those of Reason. But after the Queen's death in 1705 Leibniz made few visits to Berlin, the last being in 1711; and in the following year he made his last visit to Vienna, where he was gratified by receiving the honour of a privy Councillorship of the Empire. On his return to Hanover he found that the Elector George had left to assume the crown of England; and Leibniz was ordered to remain in Hanover and finish his history of Brunswick. His last works were *résumés* of his philosophy: *La Monadologie*, and *Les Principes de la nature et de la grace*, both published in 1714. His last years were much occupied with controversial correspondence; and in the field of philosophy the letters he exchanged with Samuel Clarke are

particularly noteworthy. The end came in November 1716. His closing years had been harassed by controversy and embittered by neglect. In Hanover, where he was buried, his faithful secretary was his only mourner; and no notice was taken of his death in London or in Berlin. Only in Paris was an adequate *éloge* pronounced, by Fontenelle, on one who has been justly described as of almost universal attainments and almost universal genius.

In his attitude to his predecessors, Leibniz stands in marked contrast to Descartes. The latter shut himself up, so to speak, in his own philosophical thinking: he never considered the relation of his own thinking to that of his predecessors; he endeavoured to work almost as though there had been none before himself giving attention to such subjects. Leibniz, on the other hand, regarded it as an essential part of the philosopher's work to penetrate and understand his predecessors. He went so far as to say, 'I agree with the greater part of what I have read'—an apparent paradox which is explained by the suggestive remark, 'Most parties or schools are right in the greater part of what they affirm, but not in the greater part of what they deny.' Hence he saw in the history of philosophy not an incoherent succession of personal opinions, but a progress—indeed, the evolution of a sustained rational endeavour to the human mind, the evolution as it were of an ever-continuing philosophy (*philosophia quaedam perennis*), deepening and enlarging through time. We have in the work of Leibniz no mere 'eclecticism', no mere picking and choosing, from the various historical systems, a combination of doctrines which pleased him; but a

genuine endeavour to reconcile conflicting principles by doing justice to the truth in each, based on the conviction that every system contains a true apprehension of some aspect of reality.

ii. *The Basis of Knowledge.*

During the Reunion discussions, Leibniz, being, as he puts it, 'in a place for several days with nothing to do' wrote out a statement in thirty-seven short sections setting forth the principles of his philosophy in their connexion with Theism. He sent a summary of these to Arnauld in February 1686, asking for his opinion. Arnauld fastened on one section in particular and criticized it severely. It was the section in which Leibniz maintained that 'the individual concept of each person', as it exists in the Divine understanding, or, as Spinoza might have said, the adequate Idea of each person, contains in itself the reasons for every event that happens through him or to him, and the reasons for the order in which these things happen. What he will do at any time is certain to the mind of God, not merely by a miraculous foreknowledge but because there are 'sufficient reasons' for the act. Nevertheless Leibniz urges repeatedly that these 'sufficient reasons', though they *incline* the agent to the choice which he makes, involve no compulsion of necessity. Arnauld on the other hand declared that this is a doctrine of fatalism; the individual's whole life and all that he does is fatally determined in advance; and Leibniz argued the question with him at great length. His contention was that although in the nature of every individual there are 'sufficient reasons' for

everything that he does, these reasons do not constitute necessity in the only distinct meaning of the word, which Leibniz takes to be mathematical necessity, as suggested by Spinoza's geometrical metaphors. But he also develops the doctrine that every individual person is a self-contained being of this kind, in a way which brings out the logical basis of his philosophy.

Consider the illustrations which he gives. God created Julius Caesar, choosing out of various possible 'natures' that one which the historical Caesar realized. Adequate knowledge of this 'nature' would include 'sufficient reasons' for everything that Caesar does; for instance, that he will endeavour to overthrow the liberties of Rome and make himself perpetual Dictator and Master of the Republic; that he will cross the Rubicon rather than delay; that he will win and not lose at Pharsalus; and all these events had their basis in the nature of Caesar as he was; *in this sense* God had 'decreed' them. But the opposite was conceivable; and the sufficient reasons which 'inclined' Caesar were part of his own nature as God had made it. Again, let us suppose that Leibniz himself is uncertain whether he will make a certain journey or not, in the near future. He is not uncertain—whether he makes it or not—that *he will always be himself*; but reasons in himself, which will incline his decision in the particular case, are not clearly recognized by him. Like all men, he has only a 'confused experience' of his own nature, but like all men he is convinced of his own personal identity; 'the *me* which was in Paris is now in Germany.' And his personal identity means that 'my attributes at the previous time and under the previous conditions, as

well as my attributes at the present time and under the present conditions, are all Predicates of the same Subject (*insunt eidem subiecto*)'. 'From the moment when my existence began, it could be said of me (i.e. truly) that this or that would happen to me; we must grant that these attributes were involved in my nature in its completeness, which is the basis of the connexion of all my varying inner states, and which God has known perfectly from all eternity.' His conclusion is this: 'I find that in all true propositions, every necessary or contingent Predicate, every past, present, or future Predicate, is involved or included in the concept of the Subject, and I ask no more.' And it is said that the 'individual concept' or adequate Idea of the nature of Adam, for instance, involves all that will ever happen to him or through him. Leibniz replies: 'I mean no other connexion between the Subject and the Predicate than the connexion which holds in the most contingent of true propositions; in other words, I mean that there is always something in the conception of the Subject which gives the reason why this Predicate pertains to it rather than that, or why a certain event has happened to it rather than not.' These statements reveal the logical principle with which Leibniz was working.

It is evident that everything which we know or believe or imagine can be expressed in definite statements, affirmative or negative, which are called in Logic 'propositions'. The question then inevitably arises, whether there is any common type of relation which all propositions of a particular kind—say, all affirmative propositions—express? The answer given by Leibniz to this question constitutes the logical foundation of

his philosophy. Every true affirmative proposition expresses a relation between a subject and a predicate. The predicate consists of some quality or property or activity attributed to the subject. The predicate therefore consists of dependent attributes; and in relation to these, the subject is the independent substance. If Leibniz had concluded that there is only one real substance, he would have been in principle at one with Spinoza; but his conclusion is to the opposite effect. For Leibniz, a substance is in the first place a possessor of attributes, and can never itself be predicated as an attribute of anything. And further, Leibniz is convinced that every true affirmative proposition means to say that the predicate is *contained in* the subject, which contains all its possible predicates, though we may actually know only a few of them.

This principle, that the subject contains in itself all its predicates, holds good of both the two great classes into which true propositions or truths must be divided. We have, first, *truths of pure reason*, which are 'necessary' as coming under the law of non-contradiction. Here the opposite of the proposition contains an express contradiction. Such truths may be more or less complex; but they can be analysed into ideas so simple as to be indefinable, axioms so simple as to be indemonstrable, and postulates which neither need nor admit of proof. The so-called 'definitions', 'axioms', and 'postulates' standing at the head of Euclid's first Book are a lame and halting approach to this ideal. The first principles of modern mathematics, as set out for example by Professor A. N. Whitehead and Mr. Bertrand Russell, are a nearer approximation to it. In the second

place, we have *truths of fact*, which are 'contingent'. A 'sufficient reason' can be given for them, which 'inclines' without importing necessity. The question arises whether contingent truth of fact could be reduced to necessary truth of reason, if we could analyse the fact far enough: that is, so far as to see our conception of the sufficient reason logically implying our conception of the fact, and the latter so becoming a pure rational necessity. It is evident that we cannot actually carry analysis so far; but the question is whether we are justified in regarding it as an ideal possibility. After much weighing of the considerations involved in this, Leibniz in the end answers definitely in the negative. Propositions dealing with actual existence are of a unique type. It must be possible to assign a sufficient reason for them, but we cannot treat their opposites as self-contradictory.

Leibniz therefore lays down two fundamental 'laws of thought':

'Our reasonings are based upon two great principles: first, the law of Contradiction, by which we judge as false that which involves contradiction, and as true, that which is opposed to or contradicts the false; and, second, the law of Sufficient Reason, by which we believe that no fact can be true or real, no statement trustworthy, unless there is a sufficient reason why it should be so and not otherwise: although in the greater number of cases we cannot know these reasons' (see *Monadologie*, sections 31 and 32: 'Nos raisonnements sont fondés sur deux grandes principes, celui de la contradiction, en vertu duquel nous jugeons faux ce qui en enveloppe, et vrai ce qui est opposé ou contradictoire au faux, et celui de la raison suffisante, en vertu duquel nous considérons qu'aucun fait ne saurait se trouver vrai ou existant, aucune énonciation véritable, sans qu'il y ait une raison suffi-

sante pour quoi il en soit ainsi et non pas autrement, quoique ces raisons le plus souvent ne puissent point nous être connues').

Leibniz endeavoured to lay the foundations of what he called a *Scientia Generalis*, that is, a complete account of the ways in which conclusions can be derived from given propositions, and reasons from given facts. In the latter case, as we have seen, complete analysis is impossible. Hence when the investigation has to start from experience, the conclusions can only possess probable value; but rules for estimating probabilities may be arrived at. The Logic of Probability is therefore an integral part of scientific method. On the other hand when the *data* consist of given propositions or the simpler ideas into which they can be analysed, we may have an *ars combinatoria*, working out the different ways in which the *data* may be combined so as to obtain results. Leibniz perceived what was required: a statement of the *data* in their simplest form, and their indication by mathematical symbols (letters as in algebra); an assignment of the forms of combination of *data*, indicated by algebraical symbols of operation; a complete exposition of the rules or laws by which these combinations must be governed. The contributions which Leibniz made to this subject give him an important place among the founders of what is now called Symbolic or Mathematical Logic.

iii. *The New Doctrine of Substance.*

The correspondence with Arnauld, to which we have referred, is of real interest because it belongs to the period (1686 and 1687) of which Leibniz speaks in a

letter written to an English friend in May 1697: 'Cependant j'ai changé et rechangé sur de nouvelles lumières, et ce n'est que *depuis environ douze ans* que je me trouve satisfait'. This statement may be illustrated by an additional quotation from the Arnauld correspondence:

'The proposition which we are discussing (i.e. that the individual concept of each person involves, once for all, everything that will happen through him and to him) is of great importance and should be firmly established: since it follows that every soul is a world by itself, independent of everything but God; that it is not only immortal, and, as it were, everlasting, but that it bears in its substance traces of everything that happens to it. From the same proposition we may also infer what the nature of the interaction between Substances really is, especially with reference to soul and body. Interaction is not brought about according to the usual assumption of a physical influence of one Substance upon another; for every present state of a substance comes to it spontaneously and is only a consequence of its preceding state. No more is interaction to be accounted for by the assumption of occasional causes, based on continual miraculous interventions of the Deity. . . . Interaction takes place under the law of concomitant variations. That is to say, each Substance expresses [or, as in the *Monadologie*, 'mirrors'] the whole course of the universe according to its own point of view and the relations in which it stands to the whole; hence the many substances are in perfect mutual accord.'

We see therefore that the logical doctrine, which we have explained above, is only the beginning of the Leibnitian doctrine of Substance. The next step results from seeing that in our interpretation of the universe we must start with reality at the point where we have the most immediate apprehension of it: namely, our own inner experience. We are thus led to assume

that the essence of Substance is effort or endeavour, as consciousness reveals it in ourselves and as analogy authorizes us to assume it in other beings. Energy, in the wider meaning of the word, is therefore not merely the type of all being; it is being itself. By this conception we can make consistent the one and the many, the possible and the real. Every being is absolutely one, but contains within its own unity an unlimited multiplicity of latent capacities, which always tend to realize themselves, and succeed more or less in doing so. Its activity, its existence, consists in the endeavour to realize its capacities through the successive moments of its being. From such considerations, Leibniz concludes that energy is necessarily immaterial. Our minds alone can give us an idea, in the operations of our intellect, of how unity can include multiplicity, and in the actions of our will, of how the real can include the possible. We experience in ourselves a multiplicity in unity when we find that the least thought which we apprehend (*que nous apercevons*) includes a variety in its object.

These conclusions have also points of contact with the scientific doctrine of physical energy as it was taking shape in the seventeenth century. Energy is not a bare potentiality: it is not to be understood as a mere possibility of action, requiring a stimulus from without to put it into action. Energy or active force really means and really is *vis viva*, energy acting or in action; as Leibniz expresses it, it is 'between' the mere potentiality of action and the act itself. It manifests itself, for instance, in a suspended weight which draws or stretches the string, or in a bow bent to be released. We can give a mechanical explanation, true so far as it

goes, of the energy of gravitation or of the spring; but such explanations do not alter the fact that real energy is an active inward tendency (*conatum involvit*, Spinoza's own term) expressing itself in motion without any outer stimulus, and limited in each being by the opposition or contrary direction of others.

iv. *The Monadology.*

We are now in a position to state the essentials of the famous doctrine which Leibniz afterwards called the Monadology. Accepting the view that Substance can be conceived only as Energy and, after the analogy of our own conscious psychical life, only as a living individuality; and calling any such individuality a *Monad*, as Leibniz afterwards did—this term being preferable to 'Substance' and free from misleading association—we find the conclusion to be that an unbounded multiplicity of such Monads constitutes the basis of reality, the fundamental being of the whole physical and spiritual universe. Just as the mind does not consist of 'parts' separated from one another by something which is not mind (as islands are by water), so the Monad has no 'parts' capable of separation or division from one another. No dissolution of it is possible. It can only come into being or come to an end by supernatural creation in the one case or supernatural annihilation in the other. As living individualities, each capable of evolving its nature and experience from itself, no two Monads are exactly alike; for two beings to be exactly alike in every respect, and yet remain two, would (according to Leibniz) be inconsistent with the plan of a rational world.

From the plan of the Divine Wisdom he further concludes that between all the outstanding divisions of beings—for instance, between plants and animals—there must exist a continuous series of intermediate beings, whereby the *connexion graduelle* of these divisions is secured, so that everybody goes by degrees in Nature, and nothing by leaps. There are therefore infinite gradations of being represented in the Monads, according to the degree of development realized by each. And in what does this 'degree of development' actually consist? The characteristic activity evolved by the spontaneity of any Monad is that of *perception*, in which it represents or 'mirrors' the universe according to its own capacity and from its own point of view, so that there is a perfect harmony of the whole. The differences among the Monads are essentially differences of 'perception', thus understood, as capable of infinite graduations of clearness and distinctness, of completeness and adequacy. A Monad of the lowest rank (*une monade toute nue*)—represented by the broad division of Nature which we call the *inorganic*—is one where the development of perception is at a minimum. It is scarcely more than a centre of force; its life expresses itself only in the form of motion. It is therefore a misuse of language to describe the Monads as 'souls'. The name of 'souls' should be reserved for those in whom perception is more distinct, and is accompanied by memory. Memory provides the soul with a kind of consecutiveness which copies (*imite*) reason but must be distinguished from it. It is the knowledge of necessary and eternal truths which distinguishes us from the mere animal, and gives us Reason and the

Sciences, raising us to the knowledge of ourselves and of God; and it is this in us that is called the rational soul or mind (*esprit*).

v. *The Material World.*

The next question is, How did Leibniz apply these conceptions to the interpretation of the material world as we ordinarily experience it? In the first place, mathematical considerations made it clear to him that the Cartesian conception of pure geometrical extension was incapable of accounting for the most obvious properties of matter, namely those resulting from impenetrability or resistance. Much less could it account for efficient causation or energy in action. The fundamental law of the material universe is not conservation of motion, as Descartes supposed, but conservation of energy. Pure extension presupposes the nature which it professes to explain: in itself it gives mere repetition, infinite divisibility into units identical except in number. Hence Leibniz concluded that Matter, as extended or spatial, is a phenomenon, an appearance, but one with a real basis (*phenomenon bene fundatum*). Its basis is found in the 'simple substances', the immaterial active units, the Monads. Leibniz was a strong exponent of the relational conception of space, according to which it is only an assemblage of relations of a special kind among the bodies which are said to be 'in space'. There is no meaning in speaking of space with no bodies in it, in saying that a thing can be *here* and not *there* without reference to the positions of other things. These relations, which constitute space as we perceive it, are

likewise a phenomenon with a real basis in the non-spatial relations of the immaterial monads.

On the other hand, the *interaction* which we are accustomed to think of as taking place *between* bodies is neither a phenomenon nor a reality. The difficulties of the conception are such that Leibniz was led to an entirely different explanation of the so-called interaction. The difficulties are not limited to the particular case of the interaction of mind and body. They arise as soon as we try to form a clear idea of any kind of *transitive* action: that is, action which, originating in one being, passes on (so to speak) and terminates in other; and it is from this point of view that Leibniz considers them. The case of *immanent* action is different: its range remains within the being which exercises it. For Leibniz, activity can only by abstraction be separated from the being that exercises it. It is a *state* of the active being, or, in the terms of logic, a predicate of this subject, and this predicate cannot actually be detached or move away from the subject; it cannot, while remaining the same state, affect two different subjects—the one that exerts it and the one that undergoes it. The so-called 'transitive' action must therefore be divided into two states, belonging respectively to the two different subjects, *correlative* but not *identical*. Strictly speaking, it is only the *harmony or correspondence* of the two beings: we call 'active' the being whose state precedes and explains that of the other, and 'passive' the being whose state immediately follows that of the other.

Leibniz points out that the problem arises equally in the reciprocal action of bodies as ordinarily conceived—apart from the doctrine of Monads. Does a body

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transmit its movement to another by impact? In the first place, bodies are not actually in immediate contact; they only appear to be so through the imperfection of our sense-perception. But, in the next place, the movement of a body can only be separated from the body by abstraction. The one body is in a position to move itself; its motion cannot *become* the movement of another. The so-called communication of motion can only consist in this, that a body puts itself in motion when it finds itself in the neighbourhood of another moving body: and the laws of this connexion can be formulated mathematically. We do not get beyond *concomitant variations*. This is a particular case of the all-pervading harmony of the infinite multiplicity of Monads, which follows from their nature, each expressing the whole from its own individual point of relationship. For reasons to be explained presently, Leibniz calls this the 'Pre-established Harmony'.

As early as the time of his first visit to Paris, the papers and letters of Leibniz show that his mind was moving to the conclusion that the mechanical explanation of Nature—that is, its explanation solely by reference to magnitude, figure, and motion—has its rightful place, and must be fundamental for physical science, but itself requires explanation by a principle more adequate to reality as a whole. And in a letter written only two years before his death, he says, in reference to his early studies and speculations: 'the doctrine of mechanism won finally the upper hand with me, and conducted me to mathematics; but when I came to seek for the *ultimate grounds of mechanism* and of the laws of motion, I turned back to metaphysics;

and at last I concluded that the Monads or simple substances were the only realities, and that material things were only phenomena: but phenomena having their foundation in the real (and immaterial) substances.' In this way Leibniz reconciled 'mechanism' and 'teleology'—the doctrine that the course of Nature is the realization of ends and purposes. He characteristically observed that both 'mechanists' and 'teleologists' are right in the affirmative part of their assertions; for although mechanical laws are universal in their sphere of operation, they serve to realize ends. Naturally he brings this conclusion into connexion with Theism. A particular fact in Nature—the growth of a living body, for instance—can and must be mechanically explained; but we must not, at the same time, be unmindful of the purposes which the Deity is able to accomplish *by the use of mechanical means*.

This brings us to the further question, How far did Leibniz anticipate the doctrine of Evolution? His chief aim no doubt is to account for the world as a static whole; but his theory has points of affinity with the modern doctrine. He prepared the way for a doctrine of evolution in his view of the substantial similarity of all things, inorganic and organic, bodily and spiritual, and still more in his view of a perfect gradation of existence, from the lowest 'inanimate' objects up to the highest organized being—man, with his intellect capable of clear, distinct, and adequate ideas. The whole system which makes up the world is a gradual development. But Leibniz appears to attach little importance to the development of the world in successive stages; and he has no conception of a cosmic

evolution in which *the lower stages are antecedents and conditions of the higher*. On the other hand, in the case of the individual animal and every other organic being, Leibniz gave his adhesion to a doctrine of development which has been called that of *emboîtement*, according to which the chick *as a whole*, for example, really exists in the egg before incubation; and that what happens afterwards is no addition of new parts, but a simple expansion or unfolding of organs which already exist, though in a form too minute to be discovered by sight. The assumption was that an extremely minute but complete chick exists in the hen's egg; and that fecundation starts a process of growth or enlargement, in the whole and in every part. This doctrine found much favour in the seventeenth century, although it was strongly criticized by Harvey.

vi. *Body and Soul.*

The human organism, like every other organic body, is to be regarded as a machine, but a machine of infinite complexity—one which 'infinitely surpasses all artificial automata'. 'A machine made by the skill of man is not a machine in each of its parts'; but 'the machines of Nature, namely living bodies, are still machines in their smallest parts *ad infinitum*' (see section 64 of the *Monadologie*). This appears to be equivalent to saying that the living body is in its essence *not* a machine; and this again is the conclusion implied by the Leibnitian doctrine, since time and space, on which mechanical relations depend, are only *phenomena*, though they are *phenomena bene fundata*, depending on the reality, the system of Monads.

We have seen that the highest type or grade of Monad is the human soul. What then is its relation to the body? The answer follows from the general conception of the Monads as falling into endless series of grades, according to the development of their distinctive activity—'perception'. When one Monad in an aggregate 'perceives' the others so clearly that they are in comparison with it of a much lower grade—perhaps even *monades nues*, bare centres of living energy—it may be considered the ruling Monad of the aggregate, not because it really acts upon them but because it has 'clear perceptions'. This Monad is the *soul* of which the given aggregate is the *body*: it 'mirrors' the aggregate in the first place and the universe through it. We may therefore say that each soul is surrounded by an unlimited number of Monads forming its body; soul and body together make a living being, and their laws are in perfect accord through the universal harmony of the whole system of Monads of which they are only a part. The general conception of interaction, which we have explained, is here applied to the particular case of body and soul. Each of these accords with the other without doing anything else than follow the laws of its own nature, which are part of its being. Thus when the will to move my arm takes place in me as a consequence of my previous thought and feeling, then the movement of my arm takes place as a consequence of previous movements.

We must observe that this is not Spinoza's doctrine of 'parallelism'. According to him, mind and body correspond because at bottom they are the same thing expressed under two different Attributes. According to

Leibniz, mind and body are two different things which correspond because of the natural harmony of all Monads with one another. This conception may be illustrated thus. A constant agreement between two clocks may be effected in any one of three ways. The two clocks may be so connected with each other by a joint mechanism that the motion of one directly acts on the motion of the other; this corresponds to the doctrine of physical interaction of body and soul. Or a skilled workman may be charged to adjust the clocks continually so that one agrees with the other; this corresponds to the doctrine of 'Occasional Causes', with its assumption of constant Divine intervention. Or, again, the clocks may be constructed with such perfect exactness that their permanent correspondence is secured, without any joint mechanism or adjusting hand of a workman. This corresponds to the doctrine of Leibniz.

This doctrine has important consequences in reference to the origin of knowledge. Instead of all knowledge coming to us directly or indirectly through the bodily senses, it is *all* developed by the soul's own activity: sense-perception is itself only a 'confused' kind of knowledge. Not only a particular class of our ideas is 'innate' (as Descartes held—the indubitable ideas on which knowledge rests). All our ideas are 'innate'; not present in clear consciousness at the beginning but worked up into knowledge in the development of the soul. The soul at birth is not like a *tabula rasa* or 'clean slate' as Locke supposed. It is more like an unworked block of marble, the hidden veins of which already limit the form it is to assume in the hands of the

sculptor. In the human soul 'perception'—common in its varying degrees to all monads—is developed into *thought*; there is thus an immeasurable though gradual difference between it and the lowest grade of Monad: and as all knowledge is implicit in the soul, its perfection depends on the efficiency of the instrument by which it is developed. Hence the importance which Leibniz attached to his *Scientia Generalis*.

Psychology is possible because the soul is naturally endowed not only with the capacity of 'perception', the representation of the outer world in the soul, the 'representation of the many in the one'; it is also naturally endowed with what Leibniz called 'apperception'; that is, the power of becoming consciously aware of its own capacity. We cannot here enter into the details of his psychology, although they are of interest in view of recent developments of the subject. The doctrine of *petites perceptions* is however of such importance for Leibniz that it demands a brief explanation. He finds many indications leading to the conclusion that there is in us at any moment an immeasurable range of changes in the soul itself which he still calls 'perceptions' but which are too slight in their intensity, too numerous, too 'confused' or indefinite for 'apperception', reflection, or analysis: although in the aggregate they do not fail to make themselves felt and produce their effect, however vaguely, in the field of consciousness. By means of these *petites perceptions* or *perceptions insensibles* Leibniz sets out to account for such a state as dreamless sleep, and to explain the laws of habit, sensation, memory, and all that depends on them. These considerations to some extent anticipate recent theories of

the unconscious factors in mental life. And for Leibniz, they fit into his general doctrine that the soul is never without 'perception', since it has no other nature than that of a percipient active being.

Leibniz makes occasional suggestions towards an ethical doctrine: for example, in the preface to the *Codex Juris Gentium*, a collection of public Acts and Treaties, published by him at Hanover in 1693. But the suggestions are not developed; they are only indications of a tendency, and are reminiscent of Aristotle. The supreme end of living is Happiness. Happiness is more than pleasure, which belongs only to the present moment. Happiness is the best state in which we can be—a stable condition affecting our whole soul—a reasonable or enlightened joy, and at the same time a perpetual progress to new pleasures and new perfections. In short, happiness is attained by the development of our perfection. Our essence being no other than our reason, our immediate perfection consists in conduct conformed as much as possible to reason. But the more our soul is perfect, the more it enlarges the field of its distinct perceptions, the more it is conscious of its relations with other beings, the more it rejoices in their joy—in a word, the more it loves: for to love is to rejoice in the happiness of another, to make his happiness one's own. Such love at first has other men as its objects, but it finds its supreme object in God. On this foundation Leibniz defines various forms of Virtue. Benevolence is the habit (*habitus*) of loving or esteeming. Charity (*caritas*) is universal Benevolence. And Justice is 'the Charity of the Wise': in other words, it is Love guided by Wisdom.

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vii. *Theism and Theodicy.*

Some students of Leibniz have found themselves forced to the conclusion that in strict consistency he ought not to have entertained any question of Theism; for in his system the *harmony of the whole* has taken the place of God. Leibniz may have inclined to this conclusion himself at one time, conceiving God not as the author of the Harmony but as the Harmony itself. But if so, it was a temporary inclination. Leibniz was a sincerely convinced Theist. This is evident beyond question when (as often) he finds it hard to bring his Theism and his Monadology into unison, without abandoning an essential part of each. He urges that this perfect Harmony of a boundless multiplicity of substances, which have no communication or interaction among themselves, can only proceed from a common cause of all: but the difficulty arises as soon as an attempt is made to explain God's relation to the Monads. The suggestions in which Leibniz finally rested are these. God is the Supreme Monad whose being is pure activity untrammelled by passivity of any kind. All other Monads are derivative or created beings. In describing the Divine creative activity, Leibniz uses various metaphorical expressions which scarcely amount to 'clear and distinct ideas'. He speaks for example of the derived Monads proceeding from God by constant 'radiations' (*fulgurations continuelles*) from moment to moment, or by 'a kind of emanation' as we produce our thoughts. But the greatest stress is laid on the result rather than on the process. God has so regulated every Monad that it constantly reflects the

universe from its own point of view, and this is the 'Pre-established Harmony'.

Leibniz admits no gulf between the world and God. God is, as it were, an omnipresent centre: all things are immediately present to Him. Those Monads which are souls or spirits have the knowledge of God, and in a measure share in His creative power. God governs Nature as its architect, but the world of spirits as its King: there is then a 'Kingdom of Nature' and a 'Kingdom of Grace'. The *Théodicée* of Leibniz seeks to show that there is a Harmony between the Kingdoms of Nature and of Grace. The object of creation is to reveal *and communicate* the perfections of God; and in choosing this world out of all the possible worlds, He chose it as 'the best possible'. With this thorough-going optimism Leibniz has to reconcile the existence of evil in the best of all possible worlds. In order to do this he distinguishes different kinds of evil. There is the inevitable imperfection which results from finiteness—inevitable, if there was to be a created world at all: this may be called 'metaphysical evil'. There is evil in the sense of pain and suffering: and Leibniz finds two considerations which throw light on this—it is sometimes retributive, coming from God as punishment; or again, it comes as a means whereby men may learn wisdom. But above all, there is moral evil. Unfortunately his treatment of this subject is the weakest part of the whole argument. Various considerations are brought forward. He urges that moral evil is permitted because in the view of the Infinite Wisdom, though not in ours, a world with such evil is better than any other possible world. He urges that evil is

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negative, the absence of perfection. He urges that it increases the good in the world by contrast, as shading in a painting or dissonance in music, neither of which lessens the perfection of the whole. He urges that we must distinguish the power to act and the evil action; the power to act comes from God, and is good: the evil actions are to be referred to men alone. Whatever may be thought of the elements of truth contained in such arguments, it must be admitted that they fail to do what Leibniz wanted them to do, because he did not realize how inadequate was his conception of God's relation to the world. Nevertheless there is force in the general contention: which is not that anything in the world, taken by itself, is as good as we can imagine it to be; but that what is bad when taken by itself could not have been better except in a world which on the whole would have been a worse world.

viii. *Leibniz and Wolff.*

We observed that about a hundred years passed before any serious attempt was made to understand Spinoza. Leibniz, like Spinoza, had no 'disciples'; but he had a successor, who produced a system in which his thoughts were methodized and reduced to dogmatic form, losing most of their suggestiveness in the process. This was Christian Wolff, who was born at Breslau in January 1679, three years after Leibniz had removed to Hanover. Wolff was by training a mathematician and by education and temperament a rationalist, firmly convinced that the unaided reason of man is adequate to attain to moral and religious truth, and that the process

can be set forth with mathematical certitude. At the University of Halle, where he became professor of mathematics and philosophy in 1706, his teaching aroused the opposition of his theological colleagues; and the attacks on him were so far successful that he was deprived of his chair and expelled from Prussia in 1731. This proceeding made Wolff and his teaching famous throughout Germany. His ideas were everywhere discussed; a few years later he was recalled to Halle, and died in April 1754.

Wolff does not represent the position of Leibniz and does not claim to do so. He transforms the monadology, and the monads become souls or conscious beings on the one side and mere atoms on the other. The doctrine of pre-established harmony becomes merely a doctrine of creation; and the principle of sufficient reason loses all its significance by being reduced to a case of non-contradiction. It is easy to be unjust to Wolff, as many historians have been. His work showed little speculative power, and its methodical and systematic form does not conceal the lack of depth and insight. His ideal, however, was a fine one, to make philosophy embrace in its survey the whole field of human knowledge; his insistence on clear and systematic forms of exposition, and his confidence in the power of reason to reduce all subjects to this form, are merits of no mean order. He had many 'disciples', and his philosophy held almost indisputed sway in Germany until it was displaced by the new way opened up by Immanuel Kant.

CONCLUSION

In these pages we have surveyed the work of three master-builders, 'whose mighty designs', to adapt a few words of John Locke, have left 'lasting monuments to the admiration of posterity'. These famous constructions appear in a different light, according as we take them for works of speculative genius, or as we examine their logical foundations.

In the hands of Descartes, Spinoza, and Leibniz, the perennial problems of philosophy are given a form and setting distinctive of modern thought; and their treatment of these problems brings to light the fundamental divergences which have to be reconciled in any rational view of the world. Above all is this true of the contrast between the monism of Spinoza (qualified by his assumption of the *conatus* as the secret of individuality) and the pluralism of Leibniz (qualified by his assumption of the 'pre-established harmony'). The task of reconciliation is necessarily a difficult one, and fails to produce any result which is strictly conclusive in the eye of reason. But it does not follow that we ought to abandon the pursuit of philosophic truth and content ourselves with science and its applications to practice, even when science is conceived in its widest sense; and the thinkers of the seventeenth century inspire us to resist all attempts, whether in the interest of a positive or of a negative creed, to fetter the speculative impulse which is inherent in the higher races of mankind.

When, however, we examine the logical foundations of these works another aspect of the situation comes to

light. The historical forms which these systems actually took, and the methods actually used in working them out, were at bottom various expressions of the entire confidence of Descartes in the 'clearness and distinctness' of our Ideas as a criterion of truth. This confidence tempted his successors to philosophical constructions of a kind which forced on thoughtful minds the previous question—the question of the validity and extent of the knowledge contained in such clear and distinct ideas. This was the question dealt with by Locke in view of the practical pre-occupations of his cautious English mind, and by Kant in view of the problems raised and not solved by the over-confident rationalism of his age. Thus was opened up a new channel for the speculative impulse of the Western European mind, based upon a more adequate analysis of the foundations of knowledge.

APPENDIX

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The best critical work on Descartes, in recent years, is in French. We may mention: *Le Système de Descartes*, by Octave Hamelin (Paris, 1911); *Index scolastico-cartésien* (Paris, 1913), by E. Gilson (specially interesting as showing the links between Descartes and medieval thought); *La Liberté chez Descartes et la Théologie* (Paris, 1913), by E. Gilson; *La pensée religieuse de Descartes* (Paris, 1924), by H. Gouhier; *René Descartes, Discours de la Méthode, texte et commentaire* (Paris, 1925), by E. Gilson.

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SPINOZA

Prof. A. Wolf's translation of the *Short Treatise on God, Man and his Welfare* (1910) contains a biography as well as critical notes, and forms a useful introduction to Spinoza's later thought. Additional biographical information is given in the same writer's edition (1927) of *The Oldest Biography of Spinoza*. An English translation of *The Correspondence of Spinoza*, with introduction and notes, by Prof. Wolf, was published in the same year. The best English version of the *Ethics* is by W. Hale White, revised by A. Hutchison Stirling (fourth edition, Oxford and London, 1910). The best French translation (based on recent studies of the text) is by Ch. Appuhn, *Les Œuvres de Spinoza* (second ed., 3 vols., Paris, 1928–9), not including the *Ethics*, published separately by M. Appuhn with Latin text and French version. The best German translation is by C. Gebhardt and others (3 vols., Heidelberg, 1922). Among the many critical studies we may mention: H. H. Joachim, *A Study of the Ethics of Spinoza* (1901); Leon Roth, *Spinoza, Descartes, and Maimonides* (1924) and *Spinoza* (1929); R. Mackeon, *The Philosophy of Spinoza* (1928); L. Brunschvicg, *Spinoza* (1906) and *Spinoza et ses Contemporains* (1923); R. Lévêque, *Le Problème de la Vérité dans la Philosophie de Spinoza* (1923). The most elaborate work on the man and his thought is by J. Freudenthal, *Spinoza, Leben und Lehre* (second ed., edited by C. Gebhardt, 2 vols., Heidelberg, 1927).

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